Investigating the challenges of widening access in medical education

A thesis presented for the degree of Doctor of Philosophy,
Imperial College London

Amandip Kaur Bisel

Section of Endocrinology and Investigative Medicine
Division of Metabolism, Digestion and Reproduction
Department of Medicine
Imperial College London, UK

Abstract

Investigating the challenges of widening access in medical education.

Students from non-traditional backgrounds are under-represented in UK medical schools. Despite measures to support potential applicants from this cohort, applications and subsequent enrolment on medical courses remain one of the lowest of any professional degree in the UK. Those students from non-traditional or historically under-represented backgrounds (HUB) that do successfully obtain a place at a UK medical school are also at greatest risk of non-completion.

This thesis investigates the challenges of widening access to medical education by looking at the decision making processes and application experiences of students considering a career in medicine and on-course experiences of medical students. It uses a mixed methods approach to identify application, offer and non-completion trends alongside incorporating accounts from students that have experienced the process and the perspectives of teachers that support the pre-entry process.

Findings indicate that, whilst the application process for medical education is a challenging process for all applicants, there are additional challenges faced by HUB students including timely and accurate information, advice and guidance and access to support networks. Of those that do successfully navigate the application and selection process, HUB students are most likely to struggle with transition into the medical school environment and to drop out of the course.

This thesis also aims to explore the effect and efficacy of different metrics that are used to assess whether a student classes as disadvantaged for the purposes of classifying them into a widening participation (WP) or non-WP category. By testing five metrics that are commonly used for this purpose, the thesis shows that using just under-representation metrics omits trends that using deprivation metrics capture, and vice-versa.

Overall this thesis identifies several factors that may be hindering efforts to widen access to medical education, bringing together issues affecting HUB students right across the student lifecycle to inform best practice.

Statement of Originality

I hereby declare that this thesis has been entirely composed by me, the named candidate and the work presented is my own.

This thesis has not been submitted or accepted in any previous applications for a degree and, to the best of my knowledge, does not contain any materials that have been previously submitted for publication, except where explicit attributions have been made.

All quotations or references to the work of other people have been clearly indicated and appropriately attributed.

Copyright Declaration

The copyright of this thesis rests with the author. Unless otherwise indicated, its contents are licensed under a Creative Commons Attribution-Non Commercial 4.0 International Licence (CC BY-NC).

Under this licence, you may copy and redistribute the material in any medium or format. You may also create and distribute modified versions of the work. This is on the condition that: you credit the author and do not use it, or any derivative works, for a commercial purpose.

When reusing or sharing this work, ensure you make the licence terms clear to others by naming the licence and linking to the licence text. Where a work has been adapted, you should indicate that the work has been changed and describe those changes.

Please seek permission from the copyright holder for uses of this work that are not included in this licence or permitted under UK Copyright Law.

Acknowledgements

There are many people who have supported me, in various guises, towards completion of this thesis and I would like to express my wholehearted gratitude to them:

First and foremost, to my primary supervisor, Professor Kevin Murphy. I am not sure you knew quite what you had signed up for in agreeing to supervise me through this doctorate but I am glad you didn't turn down the challenge! For all the trials and tribulations in getting me to completion – and there have been more than a few(!) – your unwavering support, trust and calm, pragmatic approach have kept me going and seen me through. Your patience knows no bounds and I am continually in awe of your dedication, work ethic and ability to spin a ridiculous number of plates at once. You are also the only person I know who replies almost immediately when I send an email at 2.00am – stop doing that! Thank you for imparting your knowledge and wise words of wisdom and supporting so many of my crazy decisions. Most importantly, thank you for your belief in me and always lending an ear, and offering your support, even when you are ridiculously busy. I would not have got through this journey without your backing, know-how and kindness. It hasn't always been easy but thank you for keeping it enjoyable.

To my co-supervisor Professor Sue Smith, thank you for your encouragement, warmth, kindness and support. Your invaluable insights, knowledge and impressive abilities to put me in touch with the right people at the drop of a hat, have been a huge boost and I really appreciate the input you have provided. I would not have gotten over the final hurdle without your encouragement, dedication, expertise and compassion. I always look forward to our conversations and they have kept me sane and reassured me. I am grateful to you for all of the help and guidance you have provided over the years.

Thank you also to Dr. Annalisa Alexander, I can only apologise that I was unable to complete before you moved on to pastures new but your commitment to WP, enthusiasm and encouragement were a huge boost to me in the early stages of this thesis. Thank you for your support, backing and for always putting me in touch with the right people.

A big thank you must also go to Dr. Ana Baptista. I would not have got through the final stage without your knowledge and feedback. Thank you for your kindness and patience and for taking time out to support me in the end stage of completing this thesis when you really did not have to. I am truly indebted to you.

I have learned so much from you all and it has been a privilege to be able to work with you on something I know we are all passionate about. Thank you for imparting your knowledge and wisdom to me and for your belief in me when there were times I no longer believed in myself. Most of all, thank you all for your perseverance and your hugely valuable time.

I would also like to thank everyone who participated in my studies – your willingness to share your experiences have been the cornerstone of this thesis and I am grateful for your insights and honesty. I am hopeful that we can learn from and build upon your experiences as an academic community.

To UKMED for accepting my project proposal (project number 57) and for the use of these data (data extract generated September 2019 and January 2021) and approving use for publication as part of this thesis in June 2021. I acknowledge that UKMED bears no responsibility for analysis or interpretation of data. The data includes information derived from that collected by the Higher Education Statistics Agency Limited ("HESA") and provided to the GMC ("HESA Data"). Source: HESA Student Record 2007 to 2016 Copyright Higher Education Statistics Agency Limited. The Higher Education Statistics Agency Limited makes no warranty as to the accuracy of the HESA Data, cannot accept responsibility for any inferences or conclusions derived by third parties from data or other information supplied by it.

To Professor Penny Jane Burke and Professor Andrew Brown and the wonderful team at CEEHE, University of Newcastle, Australia – thank you. You took me in at a crucial time for my PhD and when I needed an outside voice to challenge my thinking process and decide the direction I wanted to take with structuring my thesis. I learnt so much from you both, and the entire CEEHE team, during my short few months with you and look back on my time in Newcastle with particular fondness. Thank you for the generosity you showed in sharing your time, space, and expertise with me.

Thank you to the Outreach Department and Department of Medicine at Imperial College London for the financial support accompanying this PhD.

Thank you also to MERU at Imperial College London for the generous financial support to present my findings at academic conferences.

Thank you to the many colleagues across Imperial College London who have been generous with their time and expertise to provide information, suggestions, and friendly conversation in support of my work.

A big thank you also has to go to the friends and family who have kept me going through this journey. Whether providing me with encouragement, much needed breaks and distractions when I needed them, lending an ear or having a somewhat misguided sense of belief in me(!), you have provided me with the motivation and reassurance I needed at the times I most needed it. I appreciate you all. Particular shout out to my sister who has unwittingly taken on copious amounts of life admin for me over the past few years and will be glad the day has finally arrived when I stop saying “it is just until the PhD is done!”

Last, but certainly not least, a huge note of thanks to my amazing parents. You may not always understand my decisions and my levels of impulsiveness and busy-ness completely confound you, but you are my biggest, unquestioning supporters and I am so grateful for you both. Your unwavering love, compassion, encouragement, and generosity is limitless and astounding. Thank you for shaping the person I have become today, the person I will be tomorrow and for all of the sacrifices you have both made over the years to provide us with the opportunities that you never had and that have allowed me to realise my ambitions. As a family we have come a long way from where you both started and this is my small token of gratitude to you and for you. All of this is for you and I hope I have been able to make you both proud.

For so many unforeseen and personal reasons, this thesis has ended up being one of the greatest challenges I have ever undertaken but also one of the greatest labours of love. I came into it almost by accident and somewhat naively, yet complete the journey a much rounder, knowledgeable, strategic, and thoughtful person with an academic profile, rigour and confidence that I had never even entertained the thought of before. I am grateful to everyone who helped to make that possible. Whether I have individually name checked you above or not, I remember, appreciate, and will not forget your contributions to my journey. Thank you.

PhD and Research Portfolio

Publications

MacDonnell, J. and Bisel, A. (2021) 'Identifying and addressing differential black, Asian and minority ethnic student experiences at a post-1992 institution', *Widening Participation and Lifelong Learning*, 23(3), pp. 9–36. doi: 10.5456/wpll.23.3.9.

Research Presentations

Bisel, A., Murphy, KG., Smith, SF., and Alexander, A. Identifying and addressing the challenges of widening participation in medical education. Higher Education Institutional Research (HEIR) conference, Aberdeen, Scotland, UK. September 2017.

Bisel, A., Murphy, KG., Smith, SF., and Alexander, A. Identifying and addressing the challenges of widening participation in medical education. Society for Research into Higher Education (SRHE) newer researchers conference, Newport, Wales, UK. December 2017.

Bisel, A., Murphy, KG., Smith, SF., and Alexander, A. Identifying and addressing the challenges of widening participation in medical education. International Selection in the Health Professions Conference, Melbourne, Australia. April 2018.

Bisel, A., Murphy, KG., Smith, SF., and Alexander, A. Identifying and addressing the challenges of widening participation in medical education. Imperial College London MERU Annual Conference. September 2018.

Invited Presentations

Bisel, A., Murphy, KG., Smith, SF., and Alexander, A. Identifying and addressing the challenges of widening participation in medical education. Office for Fair Access (OFFA) Evidence and Effective Practice team, Bristol, England, UK. February 2018.

Poster Presentations

Bisel, A., Murphy, KG., Smith, SF., and Alexander, A. Identifying and addressing the challenges of widening participation in medical education. Association for the Study of Medical Education (ASME) Conference, Exeter, UK. June 2017.

Bisel, A., Murphy, KG., Smith, SF., and Alexander, A. Identifying and addressing the challenges of widening participation in medical education. Imperial College London MERU Annual Conference. September 2017.

Other Events, Conferences and Activities

Member of Office for Fair Access (OFFA) Steering Group: understanding the evaluation of outreach activity targeting under 16 year olds from disadvantaged backgrounds. December 2017-March 2018.

Society for Research into Higher Education (SRHE) and Office for Fair Access (OFFA): Using research to inform higher education policy and practice. Bristol, England, UK. April 2016.

Western Widening Participation Research Cluster: Non-traditional routes into Higher Education symposium. Bath, England, UK. June 2016.

Health Education England: People Matter: Widening Participation in Health and Care. London, England, UK. June 2016.

Institute for Public Policy Research: Transitions at Age 14 conference. London, England, UK. September 2016.

University of Bristol: Widening Participation Research Seminar. Bristol, England, UK. October 2016.

Higher Education Funding Council for England (HEFCE): Interdisciplinary research – policy and practice conference. London, England, UK. December 2016.

Medical Schools Council Selection Alliance: Journey to Medicine – a conference for outreach practitioners. London, England, UK. September 2018

Medical Schools Council Selection Alliance: National Medical Schools' Widening Participation Forum. London, England, UK. November 2018

Academic posts held since commencement of PhD

December 2018-December 2019: University of Brighton: Lecturer (Academic Development), Centre for Learning and Teaching.

December 2019-September 2021: St. George's, University of London: Lecturer in Student Success, Centre for Innovation and Development of Education.

September 2021-present: University of Hertfordshire: Academic Skills and Student Success Lead, School of Health and Social Work.

Qualifications gained

December 2020: Fellowship of the Higher Education Academy (FHEA).

Training

2016:

Careers: An Introduction to Career Planning for 1st Year PhDs: MLSPD, *Imperial College London Graduate School.*

Maximising Management Skills 1: Becoming an Effective Researcher, *Imperial College London Graduate School.*

Statistics and Research Methodology – 1 week course. *UCL Centre for Applied Statistics*.

Successful Interactions 3: Networking for Progressing your PhD, *Imperial College London Graduate School.*

The Imperial Residential: Enhancing Collaboration and Impact, *Imperial College London Graduate School.*

The Information Landscape: Keeping your Research Up-to-Date, *Imperial College London Graduate School.*

Writing for Success 3: Literature Review, *Imperial College London Graduate School.*

Writing for Success 4: Publication (BEPS), *Imperial College London Graduate School.*

Writing for Success 6: Grants, *Imperial College London Graduate School.*

2017

Global Postgraduate Retreats: Impact and Influence, *Imperial College London Graduate School.*

Webinar: Perfecting Presentations 1: Poster Top Tips. *Imperial College London Graduate School.*

2018

Global Postgraduate Retreats: Thesis Writing, *Imperial College London Graduate School*.

2019

Writing Across Boundaries Workshop, *Researcher Development Initiative.*

Table of Contents

Abstract ... 2
Statement of Originality ... 3
Copyright Declaration ... 3
Acknowledgements ... 4
PhD and Research Portfolio ... 7
List of Figures ... 14
List of Tables ... 17
Thesis Preface ... 18
Introduction ... 19
About the project ... 19
Researcher lens and approach ... 26
Rationale for project ... 27
Summary ... 31
Chapter 1:General Introduction ... 32
Introduction ... 33
1.1 Widening access and participation in UK Higher Education – putting it into context ... 33
1.2 Trends in Higher Education admissions ... 34
1.2.1 Does Medicine have a diversity issue? ... 34
1.3 The UK compulsory and non-compulsory education system – an overview ... 36
1.3.1 Requirements to apply to study medicine in England ... 39
1.4 Terminology in the social mobility commentary ... 41
1.5 The political context in which access and participation has evolved ... 44
1.5.1 Tuition Fees ... 44
1.5.2 Monitoring of access support and initiatives ... 45
1.5.3 Funding ... 48
1.6 What are the effects on medical education? ... 52
1.6.1 Influencers on the medical education agenda ... 53
1.7 Widening access to medical education ... 54
1.8 Where are we now? ... 57
1.9 Medical Education in the UK ... 58
1.10 Summary ... 58
Chapter 2: Investigating the factors which influence students' decision to apply to Medical School ... 59
Introduction ... 60
2.1 Making Higher Education choices ... 60

2.1.1 How do students make their Higher Education choices? 60
2.1.2 When do students make their Higher Education choices? 61
2.2 Methods 61
2.2.1 Ethical Approval 61
2.2.2 Theoretical approach and methodology for qualitative research 62
2.2.3 One-to-one interviews 64
2.2.4 Student Focus Groups 67
2.2.5 Online questionnaire 70
2.2.6 Teacher and Careers Advisors Focus Group 76
2.3 Results and key findings 77
2.3.1 The challenges of navigating the post-18 landscape 80
2.3.1.1 Deciding to study medicine 80
2.3.1.2 Challenges in the application process 87
2.3.1.3 Support with the application process 105
2.3.2 The university application process 121
2.3.3 The university interview and selection process 129
2.3.4 Experience of undertaking the application process for medical school 136
2.3.5 Preparing for transition to university 154
2.3.6 Factors in choosing to pursue a medical education 163
2.3.7 Achieving the requirements to successfully enrol on to a medicine programme 170
2.3.8 Viewpoint of teachers and careers advisors supporting students who want to apply to medicine 183
2.4 Summary 197
2.5 Future studies 200
2.6 Interim recommendations 202
Chapter 3: Investigating the demographics of applicants and entrants to UK medical schools 207
Introduction 208
3.1 Developing a national picture of medical school applications and entrants 208
3.1.1 Limitations of study 211
3.2 Outline of WP metrics used for UKMED project 213
3.3 Element One results 215
3.4 Element Two results 222
3.5 Summary 231
3.6 Future studies 232
3.7 Interim recommendations 232
Chapter 4: Investigating the on-course experience and completion rates of medical students 234

Introduction ... 235
4.1 Retention, completion, and drop-out rates in medicine ... 235
4.1.1 Methods ... 238
4.2 Results and key findings from one-to-one interviews ... 238
About Imperial College London ... 238
One-to-one interview findings ... 238
4.2.1 Pre-entry communication and information ... 239
4.2.2 Transition to the College and the medical school ... 240
4.2.3 Formal support structures ... 245
4.2.4 Informal support structures ... 247
4.2.5 Transitions between academic years of study and on-course challenges beyond first year ... 250
4.2.6 Study skills ... 253
4.2.7 The general student experience ... 254
4.3 Results and key findings from Element Three of UKMed study ... 255
4.4 Summary ... 267
4.5 Future studies ... 268
4.6 Interim recommendations ... 270
Chapter 5: Summary and final discussion ... 273
Introduction ... 274
5.1 Key findings and contribution to the literature ... 274
5.2 Reflections on the research design and process: strengths and limitations ... 281
5.3 Thesis recommendations ... 285
5.4 Recommendations for future work ... 290
5.5 Emerging issues to consider ... 292
5.6 Conclusions ... 296
References and Bibliography ... 298
Appendices ... 319
Appendix A ... 320
Appendix B ... 349
Appendix C ... 371
Appendix D ... 387
Appendix E ... 395

List of Figures

Figure 2.01: Which region of the UK do you live in? *Years 11-13* **78**

Figure 2.02: Have either of your parents attended university? *Year 11-13* **79**

Figure 2.03: Are you considering/Did you consider medicine as a course/career option? *Year 11-13* ***81***

Figure 2.04: When did you make your decision about what to do after your Year 13 studies? *Years 11-13* ***82***

Figure 2.05: Have you researched the entry requirements for medicine? *Years 11-13* ***86***

Figure 2.06: What have you found most challenging in your research/preparation for post-18 so far? *Year 11* **87**

Figure 2.07: What have you found most challenging in your research/preparation for post-18 so far? *Year 12* **88**

Figure 2.08: What have you found most challenging in your research/preparation for post-18 so far? *Year 13* **89**

Figure 2.09: What research and/or preparation did you find most helpful to choosing a university and/or course? *Year 13* **107**

Figure 2.10: What support have you had with your research? *Year 11* **110**

Figure 2.11: What support have you had with your research? *Year 12* **111**

Figure 2.12: What support have you had with your research? *Year 13* **112**

Figure 2.13: Please describe any challenges that you have found particularly difficult in terms of the application process. *Year 13* **122**

Figure 2.14: What support do you think might have lessened these challenges (from figure 2.13)? *Year 13* **126**

Figure 2.15: How difficult would you say the BMAT entrance test is? *Years 11-13* **131**

Figure 2.16: How difficult would you say the UCAT entrance test is? *Years 11-13* **132**

Figure 2.17: How difficult do you think a panel interview for medicine will be? *Years 11-13* **134**

Figure 2.18: How difficult do you think a MMI interview for medicine will be? *Years 11-13* **135**

Figure 2.19: How much of your time over the past 12 months have you spent focusing on your academic studies? *Year 12* **137**

Figure 2.20: How much of your time over the past 12 months have you spent focusing on undertaking extra-curricular activities specifically to support medical school applications? *Year 12* **138**

Figure 2.21: How much of your time over the past 24 months have you spent focusing on your academic studies? *Year 13* **139**

Figure 2.22: How much of your time over the past 24 months have you spent focusing on preparing for medical school entrance tests? *Year 13* **140**

Figure 2.23: How much of your time over the past 24 months have you spent focusing on preparing a UCAS personal statement? *Year 13* **140**

Figure 2.24: How much of your time over the past 24 months have you spent focusing on finding and completing work experience? *Year 13* **141**

Figure 2.25: How much of your time over the past 24 months have you spent focusing on preparing for medical school interviews? *Year 13* **141**

Figure 2.26: How much of your time over the past 24 months have you spent focusing on undertaking extra-curricular activities specifically to support medical school applications? *Year 13* **142**

Figure 2.27: How much of your time over the past 24 months have you spent focusing on undertaking extra-curricular activities not specifically to support medical school applications? *Year 13* **142**

Figure 2.28: How prepared were you for the BMAT entrance test? *Year 13* **143**

Figure 2.29: How prepared were you for the UCAT entrance test? *Year 13* **144**

Figure 2.30: How useful were any preparation materials you used for the a) BMAT b) UCAT entrance test? *Year 13* **145**

Figure 2.31: How prepared are you for a panel interview for medicine? *Year 13* **146**

Figure 2.32: How prepared are you for a MMI interview for medicine? *Year 13* **147**

Figure 2.33: If you have had an interview for any of your university choices, how did you prepare? *Year 13* **148**

Figure 2.34: If you have had an interview for any of your university choices, how was that experience? *Year 13* **151**

Figure 2.35: What would help you feel more prepared? *Year 11* **155**

Figure 2.36: What would help you feel more prepared? *Year 12* **156**

Figure 2.37: What would help you feel more prepared? *Year 13* **157**

Figure 2.38: What deters you away from studying medicine? *Year 11* **165**

Figure 2.39: What deters you away from studying medicine? *Year 12* **166**

Figure 2.40: What deters you away from studying medicine? *Year 13* **167**

Figure 2.41: How confident are you in achieving the academic requirements for medicine? *Years 11-13* **170**

Figure 2.42: How confident are you in achieving the extra-curricular requirements specifically related to the UCAS application for medicine? *Years 11-13* **171**

Figure 2.43: What extra-curricular activities have you already taken and/or booked in to undertake? *Years 11-13* **173**

Figure 2.44: What work experience have you already undertaken and/or booked in to undertake? *Years 11-13* **174**

Figure 2.45: What support would help to achieve the academic and/or extra-curricular requirements for medicine? *Year 11* **176**

Figure 2.46: What support would help to achieve the academic and/or extra-curricular requirements for medicine? *Year 12* **177**

Figure 2.47: What support would help to achieve the academic and/or extra-curricular requirements for medicine? *Year 13* **178**

Figure 2.48: Do you feel that you have had the same opportunities as other school students (both within your own school and in other schools) to support you in your decisions about your future? *Years 11-13* **182**

Figure 3.01: Applicant breakdown by quintile/category against each WP metric **216**

Figure 3.02: Breakdown of students entering medical school according to the entrance

test used by the medical school **223**

Figure 3.03: Breakdown of students entering medical school according to the entrance test used by the medical school and according to the IMD quintile they belong to. **224**

Figure 3.04: Breakdown of students entering medical school according to the entrance test used by the medical school and according to the POLAR quintile they belong to. **224**

Figure 3.05: Breakdown of students entering medical school according to the entrance test used by the medical school and according to the IDACI quintile they belong to. **225**

Figure 3.06: Breakdown of students entering medical school according to the entrance test used by the medical school and according to the TUNDRA quintile they belong to. **225**

Figure 3.07: Breakdown of students entering medical school according to the entrance test used by the medical school and according to the ACORN category they belong to. **226**

Figure 4.01: Breakdown of dropout rate by end of year 2 of study, overall and at each type of medical school (non-testing, UCAT-testing, and BMAT-testing) according to their WP status, against each WP metric **258**

List of Tables

Table 3.1 - Proportion of WP applicants that received one or more offers of a place at a UK medical school, per WP metric ***217***

Table 3.2 - Significance values, odds ratios and 95% confidence intervals of the likelihood of WP applicants receiving one or more offers of a place at any type of medical school, per WP metric ***217***

Table 3.3 - Significance values, odds ratios and 95% confidence intervals of the likelihood of applicants receiving one or more offers of a place at any type of medical school per quintile/category, for each WP metric ***219***

Table 3.4 - Significance values, odds ratios and 95% confidence intervals of the likelihood of WP applicants receiving one or more offers of a place at each type of medical school, per WP metric ***221***

Table 3.5 - Significance values, odds ratios and 95% confidence intervals of the likelihood of a student entering a non-testing medical school per quintile/category, for each WP metric ***227***

Table 3.6 - Significance values, odds ratios and 95% confidence intervals of the likelihood of a student entering a UCAT-testing medical school per quintile/category, for each WP metric ***228***

Table 3.7 - Significance values, odds ratios and 95% confidence intervals of the likelihood of a student entering a BMAT-testing medical school per quintile/category, for each WP metric ***229***

Table 4.1 – The number and proportion of students that dropped out of UK medical schools within 2 years of commencing their studies, by type of medical school ***258***

Table 4.2 – Significance values, odds ratios and 95% confidence intervals of the likelihood of students dropping out of UK medical schools within 2 years of commencing their studies at any type of medical school per quintile/category, for each WP metric ***260***

Table 4.3 – Significance values, odds ratios and 95% confidence intervals of the likelihood of students dropping out of UK medical schools within 2 years of commencing their studies at UCAT-testing and BMAT-testing medical schools compared to non-testing medical schools ***261***

Table 4.4 – The number and proportion of students that did not register for a PMQ number 7+ years after commencing their medical degree by type of medical school ***263***

Table 4.5 – The number and proportion of students that did not register for a PMQ number 7+ years after commencing their medical degree by WP metric ***263***

Table 4.6 – Significance values, odds ratios and 95% confidence intervals of the likelihood of students not registering for a PMQ number 7+ years after commencing their medical degree at any type of medical school per quintile/category, for each WP metric ***265***

Table 4.7 – Significance values, odds ratios and 95% confidence intervals of the likelihood of students not registering for a PMQ number 7+ years after commencing their medical degree at UCAT-testing and BMAT-testing medical schools compared to non-testing medical schools ***266***

Thesis Preface

Introduction

This preface provides an outline and rationale for this thesis including the approach taken by the researcher.

About the project

Although it is widely accepted that there are challenges in widening access to medical education, published work identifying specific challenges and developing best practice to ameliorate them is limited. This project aims to pinpoint some of the additional challenges that historically under-represented students face compared to their better represented peers and to make recommendations to reduce disparities between the two cohorts.

"Historically under-represented" is a term used here purposefully. The HE sector sees many terms used to describe students who are deemed to be at a disadvantage to their, largely, more privileged peers. Students in this category may often be described as widening participation (WP), disadvantaged, poor or non-traditional students. Essentially, these terms look to associate terms with a group of metrics generally associated with student demographics at either an individual or local (e.g. postcode or school) level. However these terms can be problematic and do not always, individually, tell the full story. For example, widening participation, in this context, is often used as a catch all term across an institution so a WP student on one course would be measured in the same way as WP on another course, even if the student body on the two courses have very different demographics. Context is needed to understand which groups of students the course, or whatever specific context is being looked at, are under-represented and need to be classed as WP. There is also no acknowledgement in the use of such terms that WP isn't a static measure and students that traditionally would fall into this category, due to demographics such as ethnicity, gender, social class and/or socioeconomic status, may move out of the under-represented group. Historically under-represented is a more holistic term that encapsulates the institutional need for standardisation of metrics but also recognises that the stance being taken may not entirely reflect the current context.

The research question and central purpose of this project is to identify the additional barriers faced by students from historically under-represented backgrounds when researching, applying to, undertaking, and completing a medical degree in the UK compared to their better represented peers.

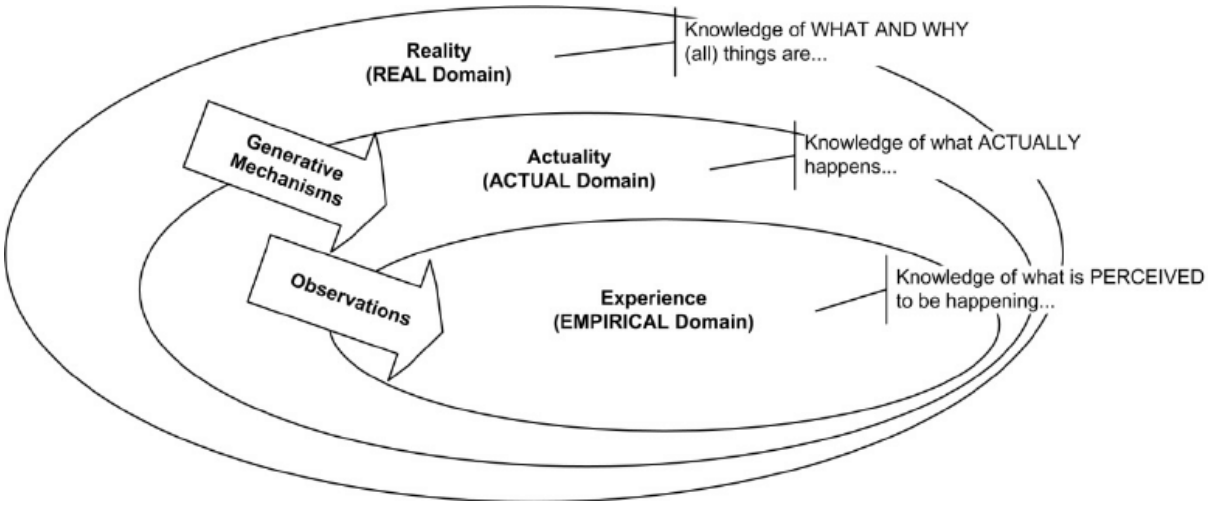
The specific aims designed to address the research question are:

- To identify the additional challenges faced by historically under-represented students in accessing medical education compared to their better represented peers. The application process to study medicine in the UK is notoriously difficult, regardless of background, but what aspects make it more challenging for students that fit the criteria of being least likely to be represented within the profession?
- To investigate the different parameters by which disadvantage is determined and whether what is commonly understood to be referred to by the many terms and metrics used in this context are an effective measure in identifying those students most in need of additional support.
- To assess how the different aspects of the application and selection process for medical school entry in the UK are perceived by potential applicants and current medical students and how conducive they are to widening access to medical education in practice.
- To identify the perceived gaps in on-course support requirements by current medical students at one specific medical school in order to progress in and complete their studies.
- To measure the continuation rates of historically under-represented students compared to their better represented peers.
- To assess whether any support or resources can be provided to further support widening access and participation to and through medical education.

These aims will be underpinned by a critical realism approach to the research question, recognising that there is no 'one size fit all' solution and everyone will experience and perceive challenges in their own unique way.

My epistemological viewpoint has been derived from my professional experience, having worked predominantly in widening participation at various HEIs and with experience of both student recruitment and admissions. These experiences have taught me that, although the process of applying for medical school can be seen as one consistent activity that everyone who wants to become a doctor in the UK has to complete, it is experienced by each individual in different ways. Applicants will face different challenges in their experience of applying to study medicine and completing their medical education. They will also perceive different aspects positively or negatively based on their experiences. It is for this reason that I have taken a critical realist epistemological approach.

Critical realism is a framework that seeks to understand the underlying structures and mechanisms that shape social reality. In the context of widening participation, critical realism conceptualises the barriers that prevent certain groups from accessing education and the underlying social structures that create and perpetuate those barriers. (Archer, 1995; Archer et al, 2016; Barnhouse Walters, 2001; Danermark et al, 2002). There are three domains of critical realism which Alexander (2013) nicely summarises in this diagram:



Critical realism concept diagram, Alexander (2013)

In order to assess the impact of any one thing we must first establish the empirical domain, i.e. understand what is being perceived to be happening. In this context this could be, for example, what medical schools perceive to be happening in terms of support for applicants at pre-entry level as much as what applicants perceive to be happening to them and/or within medical schools in terms of support or decision making processes. We then need to put that experiential observation into the context of the actual domain which seeks to understand what is objectively deemed to be happening. So, for example, this could be that an applicant from a state comprehensive school doesn't receive any offers for a place at medical school. This is a fact, it has happened. The real domain then aims to uncover the root causes of this by exploring why something happened and what may have contributed to the outcome. For example, the applicant didn't receive any offers for medical school because they had been unable to adequately express themselves in the interview they had for a medical school place because their school didn't have the resource to support them with interview practice. By understanding what is happening in all three domains, we would hope to be able to identify some of the perceived and systemic barriers to widening access to medical education.

From a critical realist perspective, widening participation involves more than just increasing the number of people from historically under-represented backgrounds who gain access to (in this case) medical education. It looks to identify and address the root causes of inequality and the social structures in which inequalities thrive. (Clarke, 2017). There are several questions we ask from a critical realist viewpoint such as, why are these barriers created in the first place? Are they unwittingly created or deliberate? Who or what created these barriers? Are the causes structural within schools, colleges and universities? Are the root causes more systemic within society in the way teachers and parents think and influence applicants? Or could the applicants (from all social and educational backgrounds) be building barriers themselves in how they perceive their inequalities will define and impact their application and student experience?

Critical realism brings more nuance to the discussion around widening participation and the ways that it is impacted by structural and systemic societal norms. It is easy to view things through a deficit model lens but critical realism allows us to view things more through a privileged assumption lens. For example, in my experience having worked across various universities, HEIs make several assumptions about the knowledge, opportunities and resources that applicants and students have access to prior to applying to and commencing Higher Education. These are reflected in the language used to write their marketing materials, the expectations they have as part of their entry requirements, the way they convene their applicant interview panels and the lack of context they afford students in their performances during those interviews. It also manifests on-course in the way students are taught and the assumptions held about students' capabilities (e.g. with technology) when they start at the university. Though difficult to measure in medicine due to the way the degree is awarded (i.e. not as classifications), awarding gaps are a huge concern at universities and impact a wide range of students with WP and other intersectional characteristics. This is an area I have vast work experience of and, through a critical realism lens, I would say that it is the antiquated processes and structures that influence these outcomes more than the (lack of) ability of student themselves. There is often a subconscious assumption that students will have had the same experiences and learning journey as the academics who teach them, which prohibits a diversity of teaching and learning practices and impacts the student experience and outcomes.

Critical realism encourages a viewpoint whereby access to education is acknowledged as being influenced by broader social, economic and political factors and not just by choice and ability (Barnhouse Walters, 2001). It is concerned with the nature of causation, agency, structure and relations – the why, not just the what. Using this lens in my research has

allowed me to look beyond academic qualities that feed into selection processes and instead look at the context and constructs that both encourage and discourage access to medical education and the assumptions that form the process of getting into and successfully graduating from medical school. Critical realism heavily informed my methodology as it allowed me to frame what I wanted to investigate beyond the quantitative and explore the experiential barriers that students faced on their journey across medical education. It also allowed me to connect their experiences with their social, economic and political contexts. Not everyone who has the potential, ability or desire to access medical education is able to but, to diversify the medical workforces, we have to understand the mechanisms that allow one group of people to thrive significantly more than others. Using critical realism to develop my methodology provided me with a wider scope to investigate these mechanisms in a much broader context.

The academic contribution that this thesis will make is to bring together issues affecting medical students from historically under-represented backgrounds right across the student lifecycle from getting into through to completing medical education, to inform best practice. It may be of particular relevance to colleagues involved in the admissions and selection processes within medical schools, those that teach and support medical students, including in their clinical practice, practitioners and organisations involved in pre-entry support and outreach, and anyone with involvement or interest in the medical education lifecycle.

This research has been funded by the Outreach Department at Imperial College London, with additional financial support from the College's Department of Medicine. Both departments also have priorities that informed the development of this research project, helping to ensure that the project has a practical focus and that the outcomes can be used to inform future practise. However, neither department influenced the methodology, findings or outcomes of this project and results and recommendations will be provided to them as part of the outcomes of the project. For transparency, the Outreach department intend to use the findings of the project to inform their provision for and support of students from historically under-represented backgrounds in applying to medicine. The Medical School will use the findings of the project to inform their selection processes to better support applicants to medicine and also to inform how they support students during their time at the College.

A key aspect of shaping this project was to be able to measure the differences in the challenges faced by historically under-represented students compared to their more privileged peers. There is a general acceptance that medicine is a rigorous and challenging discipline to access and complete, but this project intends to measure whether there are

quantifiable differences in the challenges perceived and encountered by these two groups. Using secondary, quantitative data to identify trends in application, offer and acceptance statistics and also conducting primary research to collect qualitative data allows a comparison between the access challenges and disparities perceived by potential applicants, current students and key influencers involved in the application process and the actual challenges identified in the numerical dataset. As such, this research has been shaped to ensure that the methods used allow relevant comparison by designing the primary research around the areas of focus that the secondary, quantitative data allows us to formally analyse.

This project will look at the complete medical education lifecycle in three phases as follows:
Phase 1) Pre-entry decision making process of students
Phase 2) The admissions and selection process at UK medical schools
Phase 3) Progression through a medical degree in the UK

In addition to examining the pre-entry process of choosing and applying to study medicine, the project also focuses on the actual selection process and on-course progression by using a national quantitative dataset that follows student through their whole medical education journey and by speaking to current students at one medical school to provide a more in-depth assessment than a purely quantitative approach would allow.

In order to provide breadth and depth the project takes a mixed methods approach, using primary and secondary sources, qualitative and quantitative datasets and making observations at a local and national level to provide in-depth, exploratory and wider-encompassing numerically focused findings.

Due to the range of data, methods and literature used, it is with intention that the literature review and methodological details will be incorporated into relevant chapters to provide context to the discussion as it develops, rather than being provided as standalone chapters.

Chapter 1 provides an overview of the context in which this project has been undertaken and the political factors that have impacted widening access more generally across England.

Chapter 2 is the first of three chapters using empirical data to investigate the challenges of accessing and completing medical education in the UK. This chapter aligns with phase 1 of the lifecycle and looks at the pre-entry experiences of potential applicants to UK medical schools. The chapter identifies the personal, logistical and resource challenges of students

in the decision-making process using data from questionnaires distributed online nationally to students in Years 11-13. This data is used alongside in-depth data collected via focus groups in London and the South East with students in Year 12, from a range of educational backgrounds, and one-to-one interviews with current students at Imperial College London's medical school. The one-to-one interviews consisted of semi-structured questions designed and facilitated by the researcher. A focus group with teachers working in a range of educational establishments was also conducted and relevant aspects from those discussions are also included in this chapter. All data used in this chapter is primary data with the questionnaire, focus groups and interviews all designed, distributed, and facilitated by the researcher.

In order to address phase 2 of the lifecycle and better understand the application and selection process in practice, Chapter 3 uses an externally sourced quantitative dataset to develop a national picture of trends in application, offer rate and commencement at UK medical schools, based on commonly used WP metrics. This is a dataset obtained from a licensed third-party that collects data from all UK medical schools and related bodies on medical degree applicants and entrants, tracking progress of medical school students through to graduation and beyond. The chapter details the results of retrospective analyses carried out on national application and selection data across a ten year period to assess whether there are any identifiable trends at each stage of the process that highlight particular barriers pertinent to specific groups of students.

Chapter 4 focuses on phase 3 of the lifecycle and takes a mixed methods approach to understand experiences of continuation through and completion of medical school. The qualitative section uses the same one-to-one interviews dataset as outlined in Chapter 2 above and investigates the on-course experiences of students that have successfully achieved and accepted a place at one medical school, focusing on their progression through the course. In particular, transition to medical school and between years of study are examined as a means to consider whether current provision adequately prepares students for the next stage of their studies. Support structures made formally available are discussed alongside the informal support structures that are used by students before and during their studies. Interview participants came from a range of educational backgrounds and across all years of study. The externally sourced secondary data used in chapter 3 is used to inform the student progress analysis in this chapter, with an analysis of the continuation and completion trends for medical schools nationally.

Finally, Chapter 5 will summarise the various aspects and findings of this project and discuss their potential ramifications with regards to the research questions that have determined the framework of this project.

Researcher lens and approach

My own motivations for undertaking this project come from my work experience in the field of access to Higher Education (HE). I have been a widening access and outreach practitioner for over a decade, with a specific remit in access to the professions (including within a medical school) for a majority of that period. As a result I have been able to bring a practical appreciation to this research project including an understanding of the challenges faced by the students that are currently under-represented within the field of medical education and that will, hopefully, be beneficiaries of this project. However, it would be remiss not to acknowledge that, due to my work experience in this field, this research has been influenced from a practitioner point of view and that my analysis, particularly of the qualitative elements of this project, may have been influenced by some of my own presuppositions. How this has been considered as part of the research design and analysis is further discussed in Chapter 5.

My work experience has revolved around a university setting and predominantly focused on developing widening access initiatives for pre-16 groups (primary through to GCSE level students) and supporting access to the professions. I have worked in universities in different regions of the UK, both in and outside of the Russell Group, with vastly different student bodies and staff populations and, significantly, very differing resources and budgets. This has helped me to gain an understanding of the values and priorities placed on various aspects of widening access and participation in different contexts. It has also helped me to appreciate and recognise the variations in regional needs, opportunities, and offerings. However, one thing that seems to be consistent, regardless of regional or institutional contexts, is the challenge of supporting access to medical education. We should expect greater diversity in such a vital and public-facing field but this hasn't materialised and it is with some urgency that we need to investigate why. In order to maximise effectiveness, the medical profession should be representative of the diverse communities that it serves and, with this project, I hope to further inform the conversation as to how we can progress this agenda.

In the time since commencing this research project I have also undertaken a number of academic roles related to access, participation and outcomes of student groups. My current role leads the Academic Skills and Student Success team within a healthcare programmes

department at a Post-92 institution. The student body comprises a large cohort of WP students and significant degree awarding gaps for various groups of students. This role, alongside previous academic roles, has been complementary to my research and has allowed me to develop my practise in the academic aspects of the widening access and participation in HE field. It has also provided me with the opportunity to work in an environment supporting current students thus expanding my professional experience right across the student lifecycle that this project focuses on.

This project has allowed me to use my experience in the HE access sector to better understand and critically engage with the process of medical education admissions and study from a widening access and participation viewpoint.

Rationale for project

Trends in applications/entrants to UK medical schools show a significant disparity in the number of students from low participation neighbourhoods applying to and successfully attaining places to study medicine. (HESA, 2021b) The BMA's *the right mix* report highlights that "between 2009 and 2011 half of all schools in the UK did not provide a single applicant to medicine" (2015) and these findings are backed up by research undertaken by the Sutton Trust (Montacute, 2018). Although this trend is prevalent across many of the top professions, it is a particularly pertinent issue in medical education. As Alan Milburn's *Fair Access to Professional careers* report states, 'Medicine lags behind other professions both in the focus and in the priority it accords to these [fair access] issues. It has a long way to go when it comes to making access fairer, diversifying its workforce and raising social mobility....That is regrettable, not least because when it comes to both gender and race, medicine has made impressive progress over recent years. Its success in recruiting more female doctors and doctors from black and minority ethnic backgrounds indicates that with the right level of intentionality the medical profession can also throw open its doors to a far broader social intake than it does at present....Overall, medicine has made far too little progress and shown far too little interest in the issue of fair access.' (2012: p.3)

The attitudes to fair access summarised above could be seen as being subjective, but research suggests they are accurate in their summary of the progress made in Medicine with regards to widening access. As the HESA data for 2019/2020 shows, medicine remains one of the lowest performing professions in terms of the number of UK domiciled young entrants

to full-time undergraduate medical education from POLAR4[1] low participation neighbourhoods. (HESA, 2021b) Up until 2018 less than 6% of entrants to UK medical schools (excluding Scottish medical schools) came from backgrounds historically under-represented in Higher Education; even with the opening of new medical schools focused on WP, this figure has only increased to 7.4% in the 2019-2020 cycle. Comparing this figure to another professional training programme such as Law, where the figure rises to 14.0%, highlights the extent of the issue within the medical education sector. Although this data is no longer reported, previous versions of HESA's datasets, prior to 2016, also indicated that medicine was the lowest performing subject area when looking at the number of UK domiciled young entrants to full-time undergraduate medical education with parents in non-professional occupations. (HESA, 2021b)

This problem is not unique to the UK and there is a similar trend internationally in recruiting applicants from under-represented backgrounds to medical education (for example, Greenhalgh et al, 2004; Dalley et al, 2009; Sianou-Kyrgiou and Tsiplakides, 2011). Numerous possible explanations have been offered, including lack of opportunities to attain the non-academic requirements of medical schools which are an especially limiting factor for students from historically under-represented backgrounds (Abdul, Nicholson and Wood, 2005).

All UK medical schools have implemented specific outreach programmes to support students from lower socio-economic backgrounds in making applications to UK medical schools. Most of these outreach programmes focus on students at Key Stage 5 (generally 16-18 year olds) who have already shown considerable interest in applying to study medicine and require support in achieving the academic and/or non-academic requirements of entry. (BMA, 2010) However, monitoring of these students shows that, despite the support of such outreach programmes, only a small proportion of participants are accepted into UK medical schools to study medicine. (HESA, 2021b) The reasons for this vary from not fulfilling the academic requirements of entry to students being discouraged by their teachers and pursuing alternate pathways. (McHarg, Mattick and Knight, 2007)

Interventions at Key Stage 5 have been shown to provide a greater awareness of what is required to successfully obtain a place at a UK HEI via varying degrees of information,

1 POLAR4 refers to the Participation of Local Areas classification. It groups areas across the UK based on the proportion of the young population that participate in Higher Education. Its predecessor, POLAR3 was superseded by the updated and corrected POLAR4 in October 2018, however, POLAR3 was the dominant iteration at the time of this research and so is predominantly used in this thesis.

advice, and guidance (IAG) sessions (Burgess, Horton and Moores, 2021) and, in the case of medicine, medical taster sessions and (e)mentoring in some capacity, usually involving current medical students (for example, *Pathways to Healthcare*, Imperial College London 2021). In some cases, outreach programmes have also provided opportunities to secure work experience placements to support students' applications to medical school (for example, *Pathway to Healthcare*, Aston Medical School, 2021).

There is little in the way of holistic tracking of students or agreed "success" criteria for these access and outreach programmes. As a matter of course, medical schools are unable to access data for students that do not apply to their own medical school. Data can be requested (usually for a fee and/or via a request as part of a research proposal) but organisations that hold this kind of information will only make it available when numbers are rounded to the nearest five – which means the often small numbers that medical schools are intending to track from their outreach programmes, will not be included in any data sharing. This makes the process of monitoring student progress beyond outreach interventions, difficult to undertake accurately. Such initiatives generally also lack robust evaluation and impact assessment which makes any attempt at analysis difficult. However, one thing that there is consensus about is that completion of a medical outreach programme and then not applying to study medicine is not seen as a failure, as long as the process has helped the student make an informed decision about their future.

Social mobility and widening participation in Higher Education more generally has been an increasingly high priority on the UK government's agenda over the past 20 years and has seen many changes effected as a result.

The intrinsic link that was established as part of the tuition fee reform in 2012 between a Higher Education Institution's (HEIs) ability to charge the higher band of tuition fees (i.e. above £6000 per year) and their Access Agreement, which outlines their financial and resource commitment towards and strategic plan for widening access and outreach activity, has been instrumental in making access and outreach priority areas of focus. Up to April 2018, Access Agreements had to be submitted to and approved by the Office for Fair Access in order for HEIs to charge the higher tariff fees and institutions have been compelled to ring-fence a proportion of their fee income to spend on access, in its numerous guises.

Further details about this, and related policy changes, can be found in Chapter 1 but, it is worth noting here that this policy helped to shape a more strategic approach to widening

access work across HEIs. However, because there is no uniformity as to what comprises widening access initiatives or what makes a student eligible to participate, markers of success vary widely and are difficult to compare or analyse coherently. This is emphasised by Cleland *et al* (2012) in their research report of best practice in the selection of medical students. Their report identifies that, whilst there is literature available on selection into medicine, widening access to medicine paints a very different picture: 'There are, relatively speaking, a very small number of research studies published on this topic.' (2012: p.13) Although this comment was made nine years ago and progress has been made in this area of research, it is still comparatively behind other related fields of study and the impact has been slow to manifest.

This issue of variability in WP metrics is likely to have impacted on widening access outcomes in medical education. The lack of uniformity in UK medical schools and/or HEIs as to what classifies as an under-represented or non-traditional or widening participation student means that targeting of outreach work in this field is irregular across institutions. Each medical school has its own criteria for this assessment which means that measurements of success are subjective and prone to idiosyncrasies. This is perhaps best reflected in the inconsistencies of medical schools in how (or if) they use contextual admissions as part of their recruitment process to further support the widening access agenda. Cleland *et al* (2012) report that, whilst many medical schools believe that there is a place for the use of contextual data in the admissions process, there is uncertainty as to what this actually entails and what factors should be used in such assessments.

There is pressure from government for HEIs to make use of appropriate contextual data. However, what this means in practice is difficult to assess due to lack of any kind of standardisation or universal approach (Cleland et al, 2012). Contextual admissions have the potential to play an important role in widening access to medicine and could help to address some of the barriers to accessing medical education that this project investigates. However, clearer guidance is required regarding how this should be approached. This is particularly pertinent under the current system whereby medical schools all use different approaches to, and weightings of, entry criteria in their admissions process.

The research report also states '….It is also necessary to know how successful applicants [from under-represented backgrounds] fare [during their studies] to fully assess WA [widening access]' (Cleland et al, 2012: p.72). Factors affecting on-course retention and completion, and why this might be a greater issue for students from under-represented

backgrounds, is another area that lacks robust data sets and where further investigation is required (HEFCE, 2006).

In April 2018, the Office for Fair Access was subsumed and superseded by the Office for Students (OfS) who now administer a more holistic Access and Participation Plan, which should address some of these issues around the student lifecycle approach to access and participation. In December 2018, OfS announced that from 2020-21, they will no longer require HEIs to spend a minimum amount on access and participation and instead will establish credibility and impact of Access and Participation plans via other means (OfS, 2018a). The impact that this may – either positively or negatively – have on the investment by HEIs in widening access to medical education, or assessment of impact, cannot be measured within the timeframe of this project.

Focusing on medical education more specifically, another factor that may be shown to affect recruitment of under-represented students into medical education is the media attention in recent years surrounding the Junior Doctor strikes. The cost of going to university is a massive consideration for students from under-represented backgrounds, who see this as a debt not as an investment (Pennell and West, 2005). For many such students, the decision to go to university is a considered one and based on the graduate employment opportunities and outcomes that this will lead to. With medicine already being seen as an impenetrable profession for the lower classes and the rising costs of a medical education, alongside negative press about the financial and personal wellbeing of those in the profession, there may be impact on the appeal of the profession, which may deter students previously attracted by financial aspects of working in the medical sector.

However, at the time of completing this thesis, we were in the midst of a global coronavirus pandemic which, amongst other things, saw an uptick in interest in the healthcare professions and a significant increase in applications to study medicine. This is discussed further in Chapter 5. As we emerge from the pandemic the UK has moved into a cost of living crisis which has fuelled strikes across a range of industries, including junior doctors and medical consultants. We are yet to understand the impact this will have on attracting diverse talent into the medical profession.

Summary

This section has mapped out the central focus and rationale of the research project and the structure of this thesis. The next chapter will contextualise the problem and explore the work being undertaken to widen access to medical education.

Chapter 1:

General Introduction

Introduction

This chapter will contextualise the challenge of widening access in medical education, providing an insight to the political and social contexts in which the wider widening access agenda has evolved and their impact on medical education. It provides an overview of the educational landscape within the UK, with a focus on the English education system and an understanding of the admissions process for medical schools in the UK. It also describes commonly used terminology in the widening access field and explains the key drivers of medical education in the UK.

1.1 Widening access and participation in UK Higher Education – putting it into context

A cornerstone of shaping the current HE context came in the form of the Dearing report (1997), which was published shortly after the general election of 1997. This election saw a Labour government come into power for the first time in 18 years and, along with it, a renewed emphasis on widening access to HE. Tony Blair's election agenda to focus on "Education, Education, Education" (Labour manifesto, 1997; Gillard, 2018: Chapter 17) extended beyond the compulsory schooling age bracket and New Labour voiced a determination to enrol 50% of school-leavers in HE during its term of office with an impetus on HEIs to enrol more students from working class backgrounds and poor-performing state schools.

The Dearing report was originally commissioned under John Major's Tory government with bipartisan support 'to make recommendations on how the purposes, shape, structure, size and funding of higher education, including support for students, should develop to meet the needs of the United Kingdom over the next 20 years, recognising that higher education embraces teaching, learning, scholarship and research.' (Dearing, 1997: p.1) Whilst successive governments and reports have made a number of far-reaching, and often polarising, policy changes within the education sector over the 20+ years since then, the Dearing report was pivotal in driving this work to the forefront. Despite different iterations of government, the 2008 financial crisis and various other political issues along the way, the access and participation agenda has persisted, albeit with more and more obligation being placed on HEIs to self-fund work in this field.

Key policy and sector changes that have shaped medical education admissions are discussed in more detail later in this chapter, however useful overviews of the broader access and participation agenda and the historical context in which it evolved are by provided by Kettley (2007), Greenbank (2006) and Spohrer (2015).

Most recently, the much-anticipated Augar review was published in May 2019. However, due to the political climate into which it was released, and the global pandemic of 2020, it wasn't until January 2021 that the government released their interim conclusion to the review (Department for Education, 2021). Although a number of changes are suggested as part of the interim conclusion, such as more focus on FE and apprenticeships and the establishment of a life-long learning loan, it is as yet unclear as to how the recommendations will be taken forward and implemented, or what impact they will have on the widening access and participation landscapes.

1.2 Trends in Higher Education admissions

It is well documented that the number of 18 year olds in the population has been on a downward trend since 2009, with no significant upturn until 2020. (Office for National Statistics, 2018). However, UCAS data shows us that application trends have remained largely unaffected by this population dip and that the proportion of applicants to HE from this age group has remained stable or increased year on year. In their 2019 Analysis Report, UCAS state: 'The application rate in England has risen every year since 2012 and is now at its highest on record (38.8 per cent), with this year having the biggest percentage point increase since 2014.' (UCAS, 2019: p.7)

Interestingly, over the same time period from 2009, a breakdown of applications by Participation of Local Areas version 3 (POLAR3) quintiles, which measures youth participation in HE (using methods explained in Chapter 3, section 3.2), shows a proportionally higher rate of increase in applications from those based in POLAR3 quintiles 1-3 (where 1 is the lowest level of participation), compared with those from POLAR3 quintiles 4-5 (where 5 is the highest level of participation). (UCAS, 2017) There was a 7.1% increase over 9 application cycles for each of quintiles 1-3, bringing application rates of these cohorts up to 22.1%, 29.2% and 35.3%, respectively. Quintile 4 shows an increase of 5.5% to 41.4% over the same period and quintile 5 has increased by 4% to 52.1%.

These figures show that the quintile 5 population are 2.4 times more likely to apply to university than quintile 1. Yet UCAS's Analysis Report shows that there is still a significant disparity in how these increases translate at a subject-level rate of application, with applicants from POLAR quintile 5 approximately 3.75 times more likely to apply for Medicine or Dentistry than applicants from POLAR quintile 1. (2019: p.15, figure 12)

1.2.1 Does Medicine have a diversity issue?

Of all subject areas and professions that are reported on in the UK, medical schools have

consistently had the smallest proportion of students from historically under-represented backgrounds in their intake for medicine programmes (HESA, 2021b). This is despite investment by medical schools, outreach departments and third sector organisations in outreach activities to support applications to medicine from students within this cohort.

All medical schools run outreach and/or access programmes that are designed to work with historically under-represented students who are interested in studying medicine (Nursaw, 2014). Such programmes predominantly tend to work with students during their post-16 studies to support them with their application profile. The programmes are also designed to help students understand the realities of entering the medical profession and what other opportunities there are within healthcare. As such, a non-application to medicine is not seen as a failure of the programme if it has helped students decide that an alternative path is more suitable for them. However, there are a number of students that participate in all or aspects of the programme and are still interested in studying medicine but, often for reasons unknown, do not successfully make the transition onto a medical degree. (Steven et al, 2016)

The concern therefore is that, despite the significant resource that is being invested into these programmes, there does not appear to be a relative increase in applications to or uptake of medical school places by students from historically under-represented backgrounds. If this is the intended purpose of running such programmes then what is going wrong? Are the programmes not targeting the right areas of support for students to help them make a successful application and/or support attainment? Are the programmes not targeting the right students? Is there a significant issue with the application process that is negatively affecting these students regardless of the support they receive? Or is there an issue within medical school admissions departments that adversely affect these students? This research intends to answer some of these questions and identify what the dominating issues might be.

In 2016 the UK government committed to investing in 1500 additional places at medical schools in the UK, an increase of 25% on previously funded places (Department of Health and Social Care, 2017). Whilst this was predominantly in response to a resource gap in the NHS, it was also intimated that bids that outlined a commitment to widening access and participation in recruiting to any new or additional funded places would be viewed positively (Department of Health and Social Care, 2017). As a result of the bidding round for the 1500 additional funded places, alongside additional places being allocated to existing medical schools, 5 new medical schools, all with a strong focus on widening access for students from

historically under-represented backgrounds, have also been established with first intakes from 2019-2020. The impact of these additional places on increasing the intake of students from historically under-represented backgrounds will not manifest within the timeframe of this research project but, hopefully, the findings of this study can be used to inform access and participation strategies to recruit and support students for these places.

1.3 The UK compulsory and non-compulsory education system – an overview

Schooling in the UK is compulsory for students from the age of 5 to 16, starting in reception and moving through from Year 1 to Year 11 (i.e. from primary through to secondary education). (Government Digital Service, 2021)

However, each of the four nations making up the UK have devolved educational policy and, beyond education being compulsory to age 16, there are distinct differences in how the education system works in each nation. For the purpose of this study we focus on the education system in England and, unless specified, any reference to the education system will refer to the English education system. This decision has been made based on having access to a greater number of WP indicators within England and the fact that England is the nation where Imperial College medical school is based, where a large majority of their applications are from, and also where their access and outreach work is focused.

Details of the Scottish (Education Scotland, 2019), Welsh (Welsh government, 2008) and Northern Irish (Department for Education, 2015) education systems are available for those wanting to understand the wider context of the UK education system. The English education system is outlined in greater detail below.

In 2015, in an effort to reduce the number of young people being categorised as Not in Employment, Education or Training (NEET), the UK government extended the compulsory education mandate in England so that young people must remain in education or training until the age of 18. The key distinction between compulsory education to age 16 and compulsory education from ages 16-18 being that, for the latter, this could include more vocational pathways such as apprenticeships or traineeships rather than an academic education. (Government Digital Service, 2021).

Education in England comprises Key Stages as follows:

- Key Stage 1 covers Years 1-2 (ages 5-7)
- Key Stage 2 covers Years 3-6 (ages 8-11)

- Key Stage 3 covers Years 7-9 (ages 12-14)
- Key Stage 4 covers Years 10-11 (ages 15-16) – first certificated qualifications.
- Key Stage 5 covers Years 12-13 of sixth form education or Further Education Level 3 qualifications (traditionally ages 17-18). Key Stage 5 is non-compulsory (see above for compulsory 16-18 options).

The first formal, certificated qualifications that students work towards are at Key Stage 4 (traditionally at age 15-16). These predominantly tend to be GCSEs although a significant number of schools, particularly in the independent sector, may opt to submit their students for iGCSEs (the international equivalent of GCSEs) or the International Baccalaureate Middle Years programme. For the purposes of this study, we focus on GCSE as the de facto qualification taken by a majority of students at Key Stage 4.

For those that opt for formal, certified qualifications at Key Stage 5, the prevalent qualifications that are undertaken are A-Levels, though BTEC are a popular, vocationally focused alternative and the International Baccalaureate Diploma is also a well-regarded alternative. Again, for the purposes of this study, we focus on A-Levels as the de facto qualification taken by a majority of students at Key Stage 5.

Students will choose the Key Stage 4 subjects that they wish to pursue during the Year 9 "options" process although, increasingly, schools are making students select their GCSE options in Year 8. This, in effect, means students are actively making decisions that could affect their future at age 13-14. Students could automatically preclude themselves from studying certain subjects at Key Stage 5 and pursuing certain degrees and/or professions if they haven't selected appropriately at the options stage. This is particularly pertinent for science subjects where you are unable to pursue Chemistry, Biology or Physics at A-Level (Key Stage 5) unless you have completed Triple Science (where you study Biology, Chemistry and Physics separately and are awarded a GCSE for each of them so get 3 GCSEs in total) or Double Award Science GCSEs (where you study Biology, Chemistry and Physics in slightly less depth than Triple Science and are awarded 2 GCSEs in total, covering all 3 sciences).

It is important to highlight this point in the context of medical education where A-Level Chemistry and, in many cases, A-Level Biology are compulsory qualifications required for admission to most UK medicine degree programmes. This means that a student could, potentially, preclude themselves from pursuing a medical vocation at the age of 14 if they

have opted to study Single Award Science GCSE where students will study all three science subjects but without any depth and be awarded one GCSE for the combined sciences.

This issue has been remedied somewhat in England with the staggered reform of GCSEs that have taken place under the current government (teaching of the new GCSEs started in 2015). GCSEs are now graded 9-1 with Grade 9 being the highest possible grade that you can achieve. GCSE Science was reformed in 2016 with the first examinations for this qualification taking place in the summer of 2018. A helpful summary of the GCSEs reforms can be found on the gov.uk website (Ofqual, 2015). What it is important to note for the purposes of this study is that, as part of the reforms, Single Award Science is no longer offered as a qualification. Students can now take either Triple Science or Combined Science, which for all intents and purposes is the equivalent of Double Award Science. Whilst this is a positive step in terms of ensuring that students are not precluding themselves from further scientific study by undertaking Single Award Science, there are two key points to highlight. The first is that these reforms have only taken place in England and so Single Award Science is still an option in other parts of the UK. The second is that research suggests that students are less likely to do Science at A-Level if they have completed Double Award Science GCSE compared to Triple Award Science GCSE. (Archer et al, 2016) This is perhaps unsurprising if we assume that students who take Triple Science are more interested/motivated in their science studies and therefore more likely to want to study it further. However, the Sutton Trust have undertaken research highlighting a disparity in the availability of Triple Award Science GCSE in deprived areas (Kirby and Cullinane, 2017) which is likely to have had an adverse effect on the number of students from historically under-represented backgrounds that have had access to Triple Science and subsequently opted for sciences at A-Level.

Moving forward to Key Stage 5 subject choices and, again, students are actively making decisions that may preclude them from pursuing certain degrees and vocations. Whilst this is more tangible, with students moving down to study 3-4 A-Level subjects, it is still a concern that a 16 year old is expected to make informed decisions that will affect their future. At face value, more Information, Advice and Guidance (IAG) is available to students when making decisions about Key Stage 5 studies compared to Key Stage 4. However, as I will discuss in later chapters, my research findings show that IAG resource is available in varying degrees of intensity and levels of accessibility.

Whilst I have focused here on the traditional educational options and pathways that students would take to apply for medicine, it should be highlighted that there are non-traditional

options into medicine including Access programmes for mature learners. However these make up a tiny proportion of the applicant and student body in medicine (HESA, 2021b) and so cannot currently be deemed as a significantly viable alternative to the traditional educational route.

1.3.1 Requirements to apply to study medicine in England

Generally speaking, the education systems in place across England (and the UK more widely) require students to begin to specialise from a younger age than most other education systems across the world. However, this is a particular issue for medical education where it means that an early exposure or propensity towards HE, and science education in particular, is vital to successfully embarking on to a medicine degree. A report from UCAS suggests that children who know by age ten that they want to study for a degree are 2.6 times as likely to end up at a more competitive university as someone who decided in their late teens. It also states that the most advantaged young people are more likely to be focused on university than their most disadvantaged peers (UCAS, 2016). In later chapters I will discuss students' experiences of accessing information about HE and their decision-making process; my research appears to substantiate UCAS' findings about when advantaged students start focusing on/deciding that they want to go to university compared to their peers from historically under-represented backgrounds. Medicine is one of the most competitive degree programmes to get into in the UK, with high tariff entry requirements, making medical schools, in their own right, highly selective institutions. If UCAS' findings are accurate, this would suggest that students that decide at a young age that they want to study medicine are most likely to succeed in doing so but that advantaged students are most likely to have access to resources/information that would help them make an informed decision at an earlier stage.

A majority of medical degrees in England require students to study A-Level Chemistry and/or expect an A-Level in Biology. Those that do not list either A-Level Chemistry or Biology as an essential requirement usually list it as a preferred qualification (or state that at least one of Biology, Human Biology, Chemistry, Maths or Physics is also required). Therefore if a student is not studying two sciences at A-Level their chances of being accepted to study medicine as a first degree are already dramatically reduced or non-existent.

It is this specificity of subjects that perhaps distinguishes Medicine from similarly highly competitive, vocational degrees such as Law, which shares many of the other criteria with Medicine, as listed below:

- Grade requirements: Medical schools notoriously ask for exceptionally high academic grades for their medicine degrees, with a majority of schools asking for a minimum of 3 Grade As at A-Level.

- Nearly all medical schools require an additional entrance exam to be taken as part of the application process. There are three separate entrance exams that are used in assessment: UCAT, BMAT and GAMSAT, though a medical school will usually only opt to use one of these. GAMSAT is predominantly used for post-graduate entry to medicine and so this study does not investigate this test in any great detail. UCAT and BMAT will be explored in further detail across the chapters, along with medical schools that, across the time period used in this study, did not opt to use any additional entrance exams.

- Selection interview: Virtually all medical schools will interview applicants before making offers. It is a government requirement to assess applicants to NHS training courses for having qualities in accordance with the NHS constitution and most medical school meet this requirement via an interview process.

- Work experience: medical schools will tend to strongly advise applicants to undertake work experience in a healthcare setting and, even where it is not an essential requirement for the selection process, it will tend to be looked on favourably.

- Early UCAS deadline: the Universities and Colleges Admissions Service in the UK (UCAS) administer all applications to undergraduate degree programmes at publicly funded HEIs in the UK. The main application cycle runs from early September (for entry the following September) with a deadline of 15th January. However students that want to apply for medicine, dentistry or veterinary medicine/science are required to submit their application to UCAS by 15th October (the same deadline for students wanting to apply to the Universities of Oxford or Cambridge).

- Number of medical schools you are allowed to apply to: Since 2006 UCAS application forms allow you to apply to up to five institutions/courses as standard. However, for medical applicants, they are only allowed to apply to a maximum of four medical schools in any one UCAS application cycle. The fifth application space is still available to applicants but, if used, must be used for an alternative course option. This is due to the highly competitive nature of medical school applications and to allow an opportunity for students to have a “back up” option for medicine. Of course,

not all applicants will take up this additional option or necessarily have been given IAG to help them make a suitable choice.

A full list of entry requirements for each medical school for 2025 entry has been compiled and published by the Medical Schools Council (2024).

1.4 Terminology in the social mobility commentary

One of the challenges that the HE sector faces in promoting its work in supporting historically under-represented students into and through HE is the variability of terminology and understanding of terminology. Terms such as widening access, widening participation and outreach tend to be used interchangeably even though there are important distinctions in their meanings. Similarly, students from certain backgrounds may be described as disadvantaged or non-traditional and so forth. Of most concern however is that discourse in this field of work has led to differing conceptualisations of what is or should be included in WP practice, both across the sector and internally within institutions. Stevenson, Clegg and Lefever (2010) provide a good overview of how discourse has evolved and the challenges that have resulted. Jones and Thomas (2005) outline three approaches that have manifested in the way that HEIs have organised their work in this field and the, often, deficit approach taken.

For the purposes of this research, and to provide some clarity around usage and how they fit into the wider social mobility commentary, I have outlined the proper and frequently used definitions of some of the most commonly used terms as I understand them to be in the HE context.

As Stevenson, Clegg and Lefever (2010) suggest, there is no generally agreed definition for many concepts in this area of work and so these are based on experiential observation of usage and their definition and use by various organisations including HEIs and think tanks.

- **Outreach:** when a HE institution takes their work into the community as a practice of supporting knowledge and skills accumulation. However, in practice, this term is used to cover any kind of intervention, whether on or off campus, that a HE institution undertakes with an external party under the guise of recruitment or community work. An example of a relevant outreach intervention might be when universities train some of their students to visit a state comprehensive school or college and provide additional tutoring for students in a specific subject to aid their understanding and give dedicated support that selective or independent school students are likely to receive from their staff.

- **Widening Access:** this relates to policy/activity/interventions etc. focused on diversifying the student body in terms of accessing HE. This requires an understanding of what diversity means in the particular context that you are working in as it may vary from institution to institution or course to course. In practice though, this term is used to refer to any on-campus or outreach activity, across the student lifecycle, and with a tendency to focus on socio-economically disadvantaged students; those from neighbourhoods with low progression into HE and/or students from specific groups such as care leavers or particular ethnic groups, rather than ascertaining where representation is actually lacking. An example of a relevant widening access intervention may be students from a school in a low progression neighbourhood being invited to visit their local university campus for a day to experience what a university campus is like and learn about how it differs from school and the process of applying to university.

- **Widening Participation:** this relates to supporting diversity in the student body right across the student lifecycle. The distinction between widening participation and widening access is that widening participation is, by definition, more holistic and includes a greater focus on the wider student experience, including supporting retention. There is more of an element of "getting through" rather than a targeted focus on "getting in". In practice, this term and widening access are often used synonymously. An example of how widening participation is (or should be) distinct from widening access would be where a university widening participation team identifies which students joining the university each year fit their widening participation criteria and targets them for additional (financial or academic) support to enhance their sense of belonging and ability to focus on their studies so that they thrive during their time there.

- **(Historically) under-represented students:** this is a variable term in the sense that it pertains to whichever group of students are, or have historically tended to be, under-represented in the specific context that is being discussed. This could relate to demographics such as gender, ethnicity, social class etc. or characteristics such as native speakers. Practically, this term tends to be used in the way it is intended to be, although it can sometimes be misattributed as a proxy for socio-economic deprivation rather than the wider context of under-representation. Clarifying what is meant by under-representation in the specific context being discussed can help to avoid such misattribution.

- **Non-traditional/traditional students:** this reflects the historical tendency for HE to be more readily accessed by people from wealthier backgrounds and middle to high social class. These terms tend to be used as de-facto for low and high socio-economic status, which assumes financial status as the dominant factor in ability to participate in HE.

- **Disadvantaged student:** this is a much debated and contentious term as it is very broad and inherently open to interpretation. Nevertheless, it is commonly used in the sector as a catch-all term of reference to indicate students that are not from middle class or wealthy backgrounds and therefore less likely to have had high standard educational opportunities. From my experience, the term 'disadvantaged students' tends to be used to describe students that would be targeted for outreach or widening access interventions, but the disadvantage being described isn't necessarily always consistent.

- **Schools/Education liaison:** this refers to the engagement that HE institutions have with schools and colleges in relation to HE recruitment and access support. This will include in-reach, outreach and student recruitment activities all pertaining to supporting access to HE. In general, this term is used as intended but can be perceived to be more strongly skewed towards either recruitment or access depending on the context in which it is used. For example, a schools/education liaison team in one institution may be more strongly focused on student recruitment activities such as Open Days or UCAS conventions where the primary purpose is to provide advice on accessing that particular institution. But in another institution a team with the same name may be more focused on outreach and widening access activities which provide advice on Higher Education more generally and the process of accessing any institution. From my experience, many institutions these days tend to have separate student recruitment and outreach teams which focus on these two things separately. However, schools/education liaison as a catch all term does still exist and smaller institutions are more likely to have one team that covers these areas collectively. This can sometimes make it difficult to identify or define whether an individual activity counts as a student recruitment activity or as a widening access activity.

Another thing to note in relation to terminology is the purpose they have and perceptions they cultivate in relation to student recruitment. In some contexts there may be an intrinsic

link between access and recruitment work whereas, notionally, access work is intended to be altruistic. As such, it is worth noting that there may be negative connotations and/or perceptions of a recruitment focus when using terms such as outreach, widening access, widening participation and schools or education liaison. The other terms mentioned above tend to be accepted more neutrally in this respect.

1.5 The political context in which access and participation has evolved

As discussed earlier in this chapter, access work, and to some extent participation work, came to the forefront during Blair's New Labour government. However there are a number of other policy changes and political agendas that have impacted this sector and the resources it is afforded which I will briefly summarise here.

1.5.1 Tuition Fees

Tuition fees for HE qualifications were first introduced across the UK following the enactment of the *Teaching and Higher Education Act 1998.* *(*www.legislation.gov.uk/ukpga/1998/30/contents). Fees were up to £1000FTE per year for UK students (gradually rising to £1500 per year over the next 7 years). There was no tuition fee loan and students were expected to pay this money up front each year. Devolution of government in 1999 led to Scotland and Wales establishing separate policies on tuition fees and so further acts of parliament relate only to English HE. Following the *Higher Education Act 2004 (*www.legislation.gov.uk/ukpga/2004/8/contents) tuition fees in England rose again to £3000FTE per year for UK students (increasing by the rate of inflation to circa £3650 per annum by the time the last cycle of students under this fee regime, who had started in 2011, completed their studies). This iteration of tuition fees also introduced the concept of variable tuition fees, with HEIs being able to charge between £0 and £3000. It also saw the establishment of a regulator who was able to restrict HEIs ability to charge above £1200 per annum if they were not satisfied by provision to widen access and participation; the effects of this regulation will be further explored in the next section. Tuition fee loans were introduced alongside this increase so that students were not expected to pay this fee upfront and could instead pay it back once in full-time employment after graduation. (www.gov.uk/repaying-your-student-loan/what-you-pay).

The Browne review of 2010 once again brought a change to tuition fees. Since September 2012, HEIs have been able to charge £9000FTE per year to UK students (again increasing to £9250 to accommodate some level of inflation), though fees above £6000FTE have been contingent upon submission and acceptance of an Access Agreement/Access and

Participation Plan, which will be detailed further in the next section. This current version again allows variable tuition fees but in an enhanced capacity whereby institutions can charge different fees for different courses. Tuition fee loans are still available so that students do not have to pay these fees upfront during their studies. The Augar review of 2019 has recommended a decrease in tuition fees to a maximum of £7250FTE, though it is yet to be seen whether this will be implemented. (Augar, 2019) Even with this very brief summary of the changes in tuition fees in England since 1998, it is clear that the cost of HE to the student has changed significantly in a relatively short space of time. For a more in-depth understanding of the current system, Universities UK (2015) commissioned an analysis of the impact of the 2012 fee regime, looking at the effect on students, government and universities and potential options for reforming the student funding system. Hubble and Bolton (2018) also provide greater detail and an explainer of the history of tuition fees in English Higher Education in their House of Commons briefing paper.

1.5.2 Monitoring of access support and initiatives

Along with the rising cost of HE for students came a renewed focus on social mobility and access as concerns were voiced about affordability for students from poorer backgrounds. To help ensure that tuition fees didn't act as a deterrent to the students that HE reforms were intended to attract and expand participation for, the Office for Fair Access (OFFA) was established as part of the *Higher Education Act 2004.* OFFA was headed up by the Director of Fair Access who had the power to restrict the level of tuition fees charged if they determined that a HEI wasn't satisfying its responsibilities to support widening access and participation. OFFA developed Access Agreements as a means to monitor institutional undertaking of its widening access and participation responsibilities. HEIs were expected to submit annual Access Agreements to evidence their (notionally financial) commitments to widening access and participation.

Until the change to tuition fees in 2012, Access Agreements were essentially a rote task whereby HEIs submitted a report acknowledging that resource had been directed towards access and participation activity. Funds being used were institutions' own and so institutions themselves determined how much they felt able to spend on access and participation. HEIs have vastly different resources to offer in terms of finances, physical resources such as space, and staff, so setting a uniform target spend was difficult to enforce. It is not straightforward to tell an institution how much of their own money they should spend on access and participation and so, as long as a commitment (deemed reasonable by OFFA) was shown, an Access Agreement was typically accepted. Discussions on this structure, positioning and the effect of early Access Agreements include McCaig and Adnett (2009)

discussing how additional fee income and access agreements impact widening participation and fair access and Callender (2009) who discussed how the system at the time may have been perpetuating inequalities. In particular, Callender considers this in relation to the eligibility criteria adopted by HEIs for non-mandatory bursaries and scholarships and the purpose for which they are being implemented by HEIs, assessing the extent to which these decisions reflect the political objectives and policy rhetoric of the government of the time.

When tuition fees were increased again in 2012, regulation also changed. From 2012-2018, HEIs could not charge above the basic tuition fee (£6000 plus inflation) unless a proportion of their fee income above the basic amount was ring fenced for widening participation. In other words, if a HEI wanted to charge the maximum £9000 fee they had to submit an Access Agreement showing how a proportion of the £3000 that they were charging above the basic fee of £6000 was being used to support widening participation initiatives. The proportion of income HEIs were expected to commit varied based on the proportion of "under-represented students" that they had, with those with the lowest proportions of under-represented students expected to spend 30% of additional fee income on access compared to 15% for those institutions with a high proportion of under-represented students. (OFFA, 2012)

Once again, the Director of OFFA could limit the level of tuition fees that a HEI could charge if they decided that their Access Agreement submission was unsatisfactory. The difference this time, however, was that, because HEIs were expected to spend a proportion of their tuition fee income on access work, OFFA and the Access Agreements carried more weight than previously. OFFA were now in a position to determine how much an institution should be spending on access because it was being calculated as a direct proportion of tuition fee income and was no longer based on an institution's determination of how much they thought they could afford to spend. From 2012, Access Agreements became more detailed and robust with a higher level of accountable targets required to be outlined in order to ensure appropriate levels of financial resource were committed. If OFFA decided to reject an Access Agreement and limit an institution to charging the basic tuition fee of £6000, this would have a significant financial impact on an institution which could then lose over £3000 of tuition fee income per student. This change in accountability drove changes in widening access provision. Widening access was no longer a "nice to have" initiative that was secondary to student recruitment and, instead, became much more target driven and focused, and much more prominent within the HE sector. This is reflected in how the access agreements and, now, access and participation plans that institutions have published over the years since 2012, have evolved and expanded in the commitments that they are making

and the investments that have been committed. Current and past access and participation plans/access agreements can be found here: https://www.officeforstudents.org.uk/advice-and-guidance/the-register/search-for-access-and-participation-plans/#/AccessPlans/. Looking at this through a critical realism perspective, institutional responses to this shift in value placed on access work was largely dependent on their infrastructure and size. Not all institutions were in a position to respond by expanding their outreach teams or generating stretching targets. You cannot simply view access agreements/access and participation plans without understanding the context in which an institution is working. We also don't know, from looking at access agreements, how target students perceived the outreach activities being offered and whether they found them accessible and useful. This is another aspect where the student-centred approach of this thesis should provide a useful insight to understand how interventions are received by their intended audience.

In 2018, as part of the *Higher Education and Research Act 2017* OFFA merged with the Higher Education Funding Council of England (HEFCE) to form the Office for Students (OfS). As part of this change, there is now a Director of Fair Access and Participation, and Access Agreements have become Access and Participation Plans (APP). This amendment now sees a more holistic approach so that institutional resource and spend is focused on access into and participation through HE. Widening access work is no longer just about getting historically under-represented students into HE but also about ensuring that they can make the best of their potential and don't drop out or struggle unnecessarily. Another change in regulation that came into force in 2019 is that APPs are now to be submitted as 5 year strategy documents rather than an annual submission. There is still a requirement for annual monitoring and evaluation but it is no longer necessary to submit an annual plan that covers just one academic year. This has generally been welcomed by the sector as an opportunity to be more strategic and long-term with access and participation work.

Finally, the other significant change that was brought in for 2019 by the OfS is that there is no longer a stipulation on the proportion of tuition fee spend that a HEI must spend on access and participation (OfS, 2018b). This has meant that HEIs have been able to change the amount of funding they put towards these activities, though they must still achieve the targets published within their APP. At time of writing APPs, under this new iteration, have now been approved and published, though no formal analysis has yet been published on proportionally how funding allocated by HEIs to access and participation work, has compared to previous Access Agreements.

1.5.3 Funding

One of the most volatile issues that has affected access and participation work has been funding. Over the last two decades, the access and participation in HE agenda has faced a lot of policy changes and uncertainty, particularly over funding priorities, with initiatives often only being given fixed term funding for a set number of years. The lack of permanency of any model of funding or initiative has had a lasting effect on how this work is positioned and delivered. While tuition fees, access agreements and central regulation have all driven large changes in widening access and participation work, originally the impetus of this work came from a different perspective, as outlined below.

Access work, arguably, came to the forefront with the launch of Aimhigher in 2004. Aimhigher was an initiative developed by the Department for Education and Skills amalgamated from the prior Excellence Challenge and Partnerships for Progression projects to provide a more cohesive and wide-reaching programme (Judkins et al, 2005). Aimhigher worked at a national, regional, and local area level on the premise that it would allow a collaborative approach to access work via a "one-stop shop" service for end users. Aimhigher achieved this purpose in some areas of the country where it became a well-established brand within universities, colleges, and schools as a conduit between HE and pre-university education. However, there were also some fundamental issues with how Aimhigher funding was distributed and hence the way some activities were targeted. (McCaig and Bowers-Brown, 2007)

Aimhigher's ultimate downfall came from its inability to evidence impact. With successive governments came increasing scrutiny into the investment being made in funding Aimhigher and the ultimate lack of tangible outcomes it was able to showcase. This isn't to say that Aimhigher didn't have an impact, but that it wasn't able to prove this in a way that satisfied governments at the time.

A forewarning of Aimhigher's demise came when the regional level offices were closed in 2008 under Gordon Brown's Labour government. The entire project was shut down by the Conservative/Liberal Democrat coalition government in July 2011. It may be a telling sign that a comprehensive overview of Aimhigher cannot be found via any official source, though Passy (2012) commented interestingly on the initiative at the time of Aimhigher closing down and as the 2012 fee increase was due to come in. Although agreeing that evaluation of the impact of Aimhigher was a complex process, Passy used information from several individual research and evaluation projects to conclude that there was a positive correlation between Aimhigher's activities on their national areas of priority and the proportion of HE entrants

from lower social groups. Passy concludes that, whilst it has been slow, there was a significant narrowing of the gap between advantaged and disadvantaged students accessing HE during Aimhigher's tenure and that its abolishment would likely reverse this effect and further entrench disparities. However, as with so much widening access work of its time and beyond, no causal link could be evidenced to prove that positive outcomes for students from historically under-represented backgrounds was due to Aimhigher initiatives.

Doyle and Griffin (2012) also provide a useful review of the impact of Aimhigher by bringing together a summary of papers discussing various aspects/stages of Aimhigher from inception through to disbandment. They concluded that 'the impact of Aimhigher has been hard to measure in narrow, macro cause and effect terms. Its success has been localised and cumulative. However, its challenges, including dealing with changed policy priorities, have also been cumulative in their effects and, in many cases, have limited the potential of this initiative to demonstrate its impact in terms of the narrow metrics used by policy makers in assessing performance.' The government of the time could not be swayed to accept the less tangible positive impacts of the project. Whilst, on the surface, the argument for this was justifying investment, from a critical realism perspective, it is possible that the government had other political motivations of which we can only speculate. But, despite this, HEIs built on the legacy left behind by Aimhigher to help meet the demands placed on their institutional outreach by the new tuition fee regime and, in some areas, HEIs used their own funds to maintain the local Aimhigher brand, ethos and engagement (for example, Aimhigher West Midlands).

However, the focus of Aimhigher, and institutions' own similar initiatives, was primarily on access not on participation. Phrases such as "Raising Aspirations" became synonymous with access work and there was a tendency to focus less on the academic, academic-related, or financial provision that students need in order to support their aspirations to get into university and more on raising awareness of opportunities to raise aspirations. There is a large body of work critiquing the enduring value of aspiration-raising activities and the associated assumption that it is students' aspirations that need raising rather than the opportunities to engage with and access academia. For example, Slack (2003) evaluated an aspiration-raising intervention targeted at 13-14 year olds and concluded that it had perpetuated inequalities due to being designed from the lens of an adult's assumptions of aspirations that were required rather than understanding the realities of the young people that they were trying to influence. Hart (2016) looked at how aspirations matter in the development and flourishing of students, using a capability approach lens to understand the aspirations of 17-19 year olds and concluded that a review of aspiration was needed to

comprise a more multi-dimensional understanding. Jones and Thomas' (2005) paradigmatic models of how access work is organised in HEIs provides a good summary of the deficit approach that was popular during the Aimhigher era. Considering this from a critical realism perspective, what we were seeing was a mismatch between adults' perceptions and young people's reality. The way adults interpreted what they viewed as challenges for young people didn't necessarily align with what young people actually felt that they needed support with.

The focus on participation came largely via financial support to students once they started their degrees. At an institutional level, bursaries came into prominence when the tuition fees rose in 2012 and as Student Number Controls became more flexible and were eventually removed in 2015 (Osborne, 2013). Student Number Controls were a government initiative that limited how many student places they would fund at each institution (and on each degree programme) which restricted how many places HEIs were able to offer on each of their degree programmes. Institutional bursaries became a marketing tool for HEIs to support recruitment (particularly when Student Number Controls were removed and institutions could recruit as many students as they wanted) but they also helped institutions to meet their monetary access agreement targets by offering financial support to students that met the WP criteria used by that the institution. However, it should be noted, certain degree programmes were exempt from the easing of Student Number Controls including medical degrees due to the additional subsidies these programmes receive and factors such as the need for hospital placements in order to complete the programme successfully. Despite great debate about the impact and value of bursaries (for example, Corver 2010; Harris and Davies, 2016; Chester and Bekhradnia, 2008; Harrison et al., 2018; Kaye, 2021) they are still offered, in varying formats and of differing values, across the sector. Although each institution will have its own contextual drivers and criteria for bursaries, they tend to be offered either based on students' household income and/or academic achievement.

Centrally, the government have intermittently provided non-repayable maintenance grants to students from the most financially deprived households in England. Students that started their courses in the academic year 2015-16 were the last students able to access a non-repayable maintenance grant (at the time of writing) and eligible students received up to a maximum of £3387 per year (see https://www.gov.uk/student-finance/continuing-fulltime-students for latest information). However, this scheme is now defunct, having been divested by the government at the start of the 2016 academic year. Government also introduced and supported a National Scholarship Programme (NSP) between 2012-2014 where students would receive either a bursary, money towards living costs or a small tuition fee waiver

under a scheme which required institutions to match-fund what they bid for from government. The eligibility, types of offer and amounts available under the NSP varied by institution as HEIs were encouraged to design their NSP offer around their own contexts and how much they were able and willing to match fund. A useful precis of financial support in HE since the tuition fee increase in 2012 is provided by the Institute for Fiscal Studies (IFS) in their report looking at the potential implications of the reduction in NSP funding provided by government in 2014 (Dearden and Jin, 2014).

Access and participation work has also been commercialised and there are a number of third party organisations and initiatives that support this work either through funding or providing services for hire. Relevant initiatives will be discussed elsewhere in this chapter, but it is important to note that students (particularly pre-applicants) do not rely solely on schools, colleges and HEIs to provide access and participation opportunities and that there is something akin to 'competition' in the sector.

Finally, and very briefly, someway in response to axing Aimhigher, the coalition government announced funding for National Networks for Collaborative Outreach (NNCO) which spanned two academic years from 2014-2016. This was then superseded by the National Collaborative Outreach Programme (NCOP), which was rebranded as UniConnect in 2020. NCOP/UniConnect had two phases – the first running from 2017-2019 and the second completed in July 2021. UniConnect, and its earlier iterations, is a collection of 29 regional partnerships of HEIs, colleges and other local partners that collaborate to offer Information, Advice and Guidance (IAG) to pre-university students. It shares several aims with Aimhigher but operates on a smaller scale (and budget). Crucially, it has a specific aim around developing an evidence base on 'what works' to increase progression to HE, which is where Aimhigher was lacking. The OfS have commissioned a third-party to collect evidence and report findings from across the UniConnect partnerships. By and large the findings conclude that a wide range if interventions, including Summer Schools, mentoring and campus visits, have a positive impact on student self-efficacy and knowledge of HE but, there is still limited opportunity for causal evidence. Further information on UniConnect and the evidence it has collected to date can be found at the OfS website (https://www.officeforstudents.org.uk/advice-and-guidance/promoting-equal-opportunities/uni-connect/ and https://www.ofsuniconnect/.org)

1.6 What are the effects on medical education?

It is important to understand the political context and construct under which widening access work has operated in order to recognise the additional complexities within the medical education sector.

Widening access to medical education has been affected by all of these issues but to a greater or lesser extent across its various facets.

For example, under the new Access and Participation Plan submission criteria from the OfS, institutions with medical schools have to submit their Plans to an earlier deadline than other HEIs because they have an earlier UCAS deadline. This puts an additional pressure on medical schools, and their institutions, to have their widening access and participation procedures and plans in place at an earlier stage. The earlier deadline means that they are less likely to have all of the data that they would want to use to inform the Plan and so will have less specific and more overarching commitments included within it. (OfS, 2021a)

Changes to tuition fees and financial support have a greater impact on medical students due to the extended length of medical degrees, and the consequently increased associated tuition and living costs. As will be discussed in more detail in later chapters, potential medical applicants are concerned about being able to afford a medical education and this is a serious consideration in their decision-making process, alongside their ability to navigate the application process. These concerns also remain for students that achieve a place and enter medical school.

Medicine is one of very few subjects that are subject to separate student number controls and so the removal of student number controls in 2015 is not something that directly affected medical schools. Whether it impacts the number of students applying through postgraduate routes is yet to be seen. However, as mentioned earlier in this chapter, there have been amendments to the student number controls for medicine and this has expanded the number of places available on undergraduate level medicine degrees. (Department of Health and Social Care, 2017)

Funding has an effect, albeit not uniquely, on widening access to medicine in respect to how much resource and complexity can be built into access and outreach programmes to support students from historically under-represented backgrounds that are interested in entering the medical profession.

1.6.1 Influencers on the medical education agenda

There are four organisations specifically involved with medical education and the medical profession that have an influence on widening access and participation in medicine practises in the UK:

British Medical Association (BMA)

The BMA is the professional body and trade union for doctors in the UK (BMA, 2021). Their predominant role is to support and advocate on behalf of doctors and medical students in the UK. However, they are also a repository of information, research, and literature through their journal – the British Medical Journal (BMJ) – and the independent reports that they produce. Their "the right mix" report, published in 2015, brought widening access in medical education to the forefront, not just for medical schools, but also for medical practitioners themselves (BMA, 2015). This report looks at how the medical profession is diversifying its workforce and condemns the profession's lack of advancement in this area.

General Medical Council (GMC)

The GMC govern medical education and practise across the UK. All doctors in the UK have to register with the GMC before they are able to practise and all medical schools have to register with the GMC to get their medicine programmes validated. The GMC play an important part in medical education by "setting standards for undergraduate and postgraduate medical education, and monitoring training environments." (GMC, 2021) The GMC is a founding partner and play an important role in the work of the UK Medical Education Database (UKMED), which collects and integrates data across the medical student and professional practise lifecycle to facilitate research into areas such as the diversity of the medical workforce and the applicants to medical schools.

Health Education England (HEE)

HEE leads and coordinates education and training in healthcare professions, including medicine. As part of its education outcomes framework (2012), HEE has a focus on widening participation. It takes a holistic view of widening participation, viewing it from a shortages in workforce aspect and then working back to how this can be addressed in pre and postgraduate training. Nevertheless, it provides support and guidance to HEIs and supports third party programmes that focus on access to medicine through various research, reports, and resources, including a discovery report looking at the future of healthcare work experience. (McAvoy, 2021)

Medical Schools Council (MSC)

The MSC represents medical schools in the medical education landscape. Its purpose is to shape how medical education is delivered in the UK and address current and future challenges for the sector. (2018a)

The MSC comprises of the Heads of UK medical schools but there are also a number of sub-groups involving other staff within HEIs. One of particular note to this agenda is the Selection Alliance. This group was established as the key recommendation from the MSC's *Selecting for Excellence Final Report*. The Selection Alliance comprises staff involved in the selection of medical students to provide a platform for a more cohesive approach to selecting the best candidates for medicine. There is also an oversight group that involves a wide range of stakeholders in this process which monitors the progress of the Alliance. (Medical Schools Council, 2014)

1.7 Widening access to medical education

Widening access to medical education is a complex area of work. As mentioned in the introduction, every medical school either runs and/or is involved in programmes that intend to support pre-university students with their aspirations to study medicine. However, the evaluation of the impact of these interventions and tracking of students is patchy and inconsistent, which makes their effects difficult to assess. Whilst the medical education sector as a whole appears to be more focused on the widening access agenda, there has been little movement on the numbers of students from low socio-economic backgrounds (which is the measure used by HESA to indicate WP students) that apply to and achieve a place at medical school over the past decade (Steven et al, 2016).

There are a number of external organisations which also offer support to students from historically under-represented backgrounds in applying to medicine, including the Sutton Trust Pathways to Medicine programme (The Sutton Trust, 2021) and the Social Mobility Foundation Aspiring Professionals programme (Social Mobility Foundation, 2021). These programmes serve as an additional resource and opportunity available to students where demand exceeds supply of medical school widening access and outreach opportunities.

In chapter 2 we will discuss students' awareness of these opportunities and how they are perceived. However, one important observation to note here is the heavy focus on post-16 students for these opportunities. Many programmes, both those led by HEIs and those led by the third sector, are only available to post-GCSE students. In essence, students need to

already be seriously considering medicine in order to participate and have made the correct educational choices up to that point (GCSE and A-Levels). This leads to an interesting question on the purpose of these programmes. Are they there to support students already interested in medicine in making a successful application, or to get more students from disadvantaged backgrounds interested in applying? Do they focus on raising awareness and understanding of what is involved in studying and working in the medical profession to support more informed decision making, or is the focus on increasing applications to the course by supporting students through the process?

The answer to these questions may well be different for each HEI and/or programme but the heavy focus towards post-16 work suggests that the purpose may well be to support conversion from application to offer of a place at medical school rather than to widen the pool of candidates from historically under-represented backgrounds that are applying. It would be interesting to extend this research further to assess the purpose, desired and actual impact of all of these programmes to see whether their aims accord with their impact. What is intended may well differ between stakeholders, which again adds another level of complexity to this work. Whilst this is outside of the scope of this study, later chapters will discuss students' experiences and views on various aspects of these programmes.

There are also other ways that HEIs and stakeholder organisations support widening access to medical education. For example, the MSC hosts a number of resources on its website aimed at pre-entry students (Medical Schools Council, 2018b). These resources aim to centralise some of the key information that students may be looking for or require when considering a medicine pathway. Chapter 2 will look at some of the ways that students look for information when applying for medical school and what they believe would be helpful to this process. The MSC also supports best practice in the selection process via its Selection Alliance, as mentioned in the previous section.

Medical schools are increasingly using contextual admissions, a process whereby an applicant's background is taken into account when making an offer of a university place, to provide a greater flexibility for applicants from historically under-represented backgrounds where circumstance, rather than ability, has impacted their educational experience (Gorard et al, 2019; O'Sullivan et al, 2019). This is an approach strongly recommended by many stakeholders in the sector to counteract the disadvantage faced by some students (Medical Schools Council, 2014), but its use and impact is somewhat limited. Quite often, applicants are unaware that a medical school is using contextual admissions and/or how it is being used and so it is unlikely to boost applications from those that may benefit, though it may

well increase the success rate of those that do apply. Alexander et al (2017) also highlight how language used on medical school websites to describe efforts to diversify the applicant pool may work as a barrier rather than as encouragement to increasing applications from students from historically under-represented backgrounds. Viewing this from a critical realism perspective, this lack of awareness is unlikely to just be due to poor marketing or conveying of information. HEIs are aware of the negative press associated with positive discrimination initiatives and want to avoid the ire of parents of traditional students who feel their children are being disadvantaged by such policies. As such, it is likely that some HEIs are reluctant to widely advertise and/or downplay their contextual admissions policy despite the impact it may have on application numbers if this was made more transparent.

Some medical schools are more explicit, offering, for example, “gateway” or “foundation” year programmes for students applying to medicine either from historically under-represented backgrounds or with strong A-Level grades but in subjects that are unsuitable for studying medicine. These programmes provide an additional year of study for students to equip them with the necessary knowledge and skills to undertake a medicine degree. Whilst opinion is divided on these programmes with regards to issues such as creating a stigma for participants when they join the main medical degree, plus the additional year’s tuition and living costs incurred by students that are likely to already face financial concerns and a large student debt, there is some evidence that they prove effective. For example, the universities of Glasgow and Dundee were praised for their pre-medicine year programmes which saw 40 out of 42 participants continue on to study medicine. (BMA, 2018) However, not all such programmes automatically guarantee transfer onto the MBBS programme and so conversion rates are unlikely to be as high across the sector as for the Scottish example provided. There is potentially a concern therefore that students undertaking this additional year only to then progress onto a different degree programme could have entered their eventual degree programme without undertaking this additional year.

Additionally, the small numbers engaged in such programmes, even aside from attrition rates, mean that this approach would be difficult to be rolled out on a large-scale to make the kind of impact needed to significantly affect the proportion of students from historically under-represented backgrounds entering medical education. Similar observations can be made about other alternative pathways that medical schools offer such as postgraduate medical programmes for students that gain a relevant alternative degree and then apply for medicine as a graduate. These programmes do not tend to be specifically targeted at any particular demographic groups of students and are limited in the number of spaces that are

available and so, again, the level of impact that they are able to make to the widening participation landscape is restricted.

1.8 Where are we now?

Though there has been research into widening access and participation in medical education, this is relatively limited compared to that into the broader widening access and participation agenda. Relevant literature will be reviewed in each chapter but it is important, at this stage, to note that much of the work in this field focuses on the point of application and/or the admissions process for medicine. There is a much smaller body of literature looking at the impact of pre-16 choices and influences on future decision making related to medical education. There is also currently limited work that identifies what the challenges for historically under-represented students are in terms of actually deciding to apply for medicine and the influence of stakeholders and key influencers in this process. This is why a critical realist approach is helpful to understand how approaches and experiences may differ from person to person, even within a relatively small sample group where you might expect viewpoints/outcomes to be similar. For example, are teachers and parents being supportive? Are they being overzealous in encouraging/discouraging students to study medicine? What drives differences in their approaches?

As discussed in section 1.7 we are now at a stage where there are many long-running and well-established access initiatives in place as part of a concerted effort to address some of the recognised difficulties in accessing medical education. However, in general, conversion from these initiatives to an actual place at medical school is relatively small and there is insufficient data, at this stage, to provide evidence of long-term change or impact. If students are predicted the grades that are required for entry to medical school and getting support to access opportunities at post-16 level that will help them with their application, it is unclear what other factors are making access to medical school difficult. This study uses both qualitative and quantitative approaches to consider what some of these challenges may be.

With a renewed sector-wide focus on the student lifecycle and on-course student success, research on widening participation in medical education is also very limited. The focus of research, support and interventions has predominantly been on widening access rather than participation. We know that proportionally small numbers of students from historically under-represented backgrounds are successful at attaining a place at medical school in the UK but, for those that do attain a place, it is unclear how many successfully complete their medical education, what support they access when they are on-course, and whether they face any

additional disadvantages during their medical studies. Findings relating to these aspects will be discussed, using a case study approach, in later chapters.

1.9 Medical Education in the UK

Medical degree programmes in the UK are required to meet requirements set out by the GMC in order for students to be able to qualify and register as doctors (GMC, 2021). However medical programmes are not taught in exactly the same way and structures vary. Undergraduate medical degree programmes are longer than traditional degree programmes and take 5 years to complete. However students may opt to intercalate for a year in later years of the programme to get a Bachelor's degree in a related discipline (and this is a requirement at some medical schools) or they may need to resit a year of the programme so 5 years should be seen as the minimum time taken to complete rather than the maximum. Students will also need to undertake clinical placements as part of the programme and medical schools run these in different ways. Some medical schools offer exposure to a clinical environment from the first year of the course (though the level of exposure increases significantly in later years) alongside classroom teaching. Other medical schools offer all of their clinical placements only in later years of the programme but in larger blocks. Each style will work for students in different ways and it is important for students to be able to understand the different structures and which style of teaching and learning may suit them best. However, no matter what the structure of the programme, there are vast elements of classroom/theoretical teaching and clinical exposure that students must navigate.

1.10 Summary

This chapter has provided background and context to the widening access agenda and summarised the many stakeholders, interventions and initiatives impacting the access and participation agenda in medical education. It has set the scene and provided a basis for why the researcher has positioned the thesis to focus on this particular issue. The next chapter will focus on Phase 1 of the medical education lifecycle, using qualitative and quantitative data to understand the decision-making process of pre-entry students when considering their post-18 options.

Chapter 2:

Investigating the factors which influence students' decision to apply to Medical School

Introduction

This chapter is the first chapter of the thesis which describes the results of studies carried out specifically for this project. It will provide details of data collection including the methodology used for data collection and analysis, and the justifications for this approach. It will focus on the pre-entry stage of the student lifecycle, investigating the influences, experiences and challenges of decision-making for students when considering their Post-18 options, using a critical realism approach to analysis. It aims to understand the factors that go into making these choices, when these decisions are made and what further support would be beneficial to the process. It also considers whether there are opportunity and/or advantage gaps between students from different backgrounds at this stage of the student journey.

2.1 Making Higher Education choices

2.1.1 How do students make their Higher Education choices?

This chapter uses a range of data collection methods to investigate the decision-making processes and challenges that students face when considering whether to apply to medical school and in pursuit of a medical education.

There is a range of literature that focuses on the decision-making practices of 18 year olds in relation to Higher Education choices and the influences that have the greatest effect. Whilst they take different approaches, and with slightly different focuses, the overarching findings are fairly consistent across the board. Hooley and Lynch's early work in 1981 suggested that there were six key factors influencing student choice with regards to Higher Education, which included distance from home/university location, academic reputation and advice from parents and teachers. When Connor et al surveyed 20,000 undergraduates 17 years later in 1998, proximity to home came out as a major factor for students, particularly those from disadvantaged backgrounds (Connor et al, 1999). Diamond et al provide an interesting overview of the consistencies and discrepancies in the key factors of university choice in their research commissioned by The Higher Education Academy (HEA – now called Advance HE) and National Union of Students (NUS) in 2012 looking at the Behavioural Approaches to Understanding Student Choice. A consistent trend across the studies appears to be university location being a driving factor for students from disadvantaged backgrounds. This chapter looks at whether these trends remain when looking at decision-making for a specific highly-competitive course such as medicine and whether the type of school that a student attends (state comprehensive, state selective or independent) affects

how they make their decisions or what tools they use to support their post-18 decision-making process.

The Department for Education and Skills commissioned the National Foundation for Educational Research to look at the decision-making of 14-16 year olds in 2006. However, this study focused more on their post-16 options rather than on their views on guidance received about their post-18 options. As mentioned in Chapter 1, decisions made pre-16, particularly in Year 11 regarding post-16 options, will impact a student's eligibility to apply to study medicine. This chapter, therefore, looks at students' retrospective responses to their decision-making process in Year 11 via interviews and focus groups (outlined further in section 2.2 below) and also the written survey responses of Year 11-13 students going through the process of selecting their post-16 options (detailed further in section 2.2.5 below).

2.1.2 When do students make their Higher Education choices?

Current literature has little to say regarding *when* students make their decisions about their post-18 options. Whilst there are traditional time points when some decisions need to be made (for example, choosing A-Levels in Year 11), it is not clear whether these reflect when students actually make those decisions or whether they start considering them earlier and/or the impact of making them later. Given the specificity of entry requirements for medicine compared to many other degree programmes, it is also not clear from the current literature whether the timing of these decisions are different for students wishing to study medicine and whether those who get a place at medical school are making decisions earlier than their unsuccessful peers. This chapter uses both quantitative and qualitative data, as detailed in section 2.2 below, to investigate when students are making decisions about whether to study medicine as well as the factors informing these decisions.

2.2 Methods

2.2.1 Ethical Approval

An ethics application was submitted to Imperial College London's Medical Education Ethics Committee to undertake this research. Application reference MEEC1516-44 was approved by the committee on 25/04/2016.

Using primary, predominantly qualitative data, to identify factors that influence student decision-making across Years 11-13 and what attracts or detracts them from pursuing medical education, this chapter focuses on the pre-entry experiences of potential applicants to UK medical school. Three discrete data collection methods were used as follows:

- One-to-one interviews with current students at Imperial College Medical School.
- Focus groups with Year 12 students from a range of school across London and the South East. A follow up focus group with teachers and careers advisors was also facilitated.
- Online questionnaire advertised nationally, targeted at Year 11-13 students.

2.2.2 Theoretical approach and methodology for qualitative research

The term 'qualitative research' became mainstream in the social sciences in the 1960s. "We use the term qualitative research as an umbrella term to refer to several research strategies that share certain characteristics" (Bogdan and Biklen, 1992). Qualitative research aims to develop concepts that help to understand social phenomena in natural rather than contrived settings. All participants' views are considered and given "due emphasis to the meanings, experiences and views" (Pope and Mays, 1995). As such, conclusions are usually reached using inductive reasoning, with researchers identifying trends and common themes to further explore and/or make deductions from (Cleland, 2015). Qualitative research is usually intended to address the 'why' whereas quantitative research is usually focused on answering 'what' questions.

Concepts used in qualitative research

Qualitative research is a complex area of research that involves many different elements. It requires a theoretical grounding and understanding of how different approaches affect how data is constructed and interpreted. Three of the key concepts in qualitative research are outlined below:

Paradigms, in social science, can be defined as a set of shared beliefs amongst a community of researchers (Cleland, 2015). They are a way of viewing the world, through an analytical lens, to try and understand the human experience (Kuhn, 1962).

Epistemology can be defined as the theory of knowledge. In essence, it is looking at *how* we know what we know and the routes taken to that get to that knowledge. (Crotty, 2003; Gregory, 2017).

Ontology can be defined as focusing on the object of inquiry and seeks classification and explanation of entities (Bryman, 2004). Grix describes ontology as "the starting point of all research" and suggests that a person's epistemological stance follows on logically from their ontological position (2002). In simple terms, it is looking at *what* we believe constitutes social reality (Blaikie and Priest, 2019).

Looking at what is meant by the existence of something alongside how we have determined this is a key essence of qualitative research. If ontology is about what we may know, then epistemology is about how we come to know what we know (Grix, 2002).

Approach taken for the qualitative aspects of this chapter

For the one-to-one interviews and focus groups, I took an interpretivist approach to my analysis. 'Interpretive research is a research paradigm that is based on the assumption that social reality is not singular or objective, but is rather shaped by human experiences and social contexts (ontology), and is therefore best studied within its socio-historic context by reconciling the subjective interpretations of its various participants (epistemology)' (Bhattacherjee, 2012, Chapter 12).

Critical realism can be used to interview individuals in a bid to reconstruct their internal conversations as they recall, interpret and navigate certain objective social structures that they find themselves in, particularly related to critical decision points in their lives. (Archer, 2003) By taking this approach, the one-to-one interviews and student focus groups were framed to collect subjective accounts of how participants experienced the process of deciding on post-18 options, undertaking the application process and, in the case of the interviews, also how they experienced their medical education. I was then able to interpret and construct participants' perceptions and experiences in relation to their context, using thematic analysis to draw out commonalities. These commonalities were then used to design the questionnaire which allowed for a much greater volume of data to be gathered to assess whether the phenomena that had been identified were still prevalent on a larger scale and/or whether new perspectives were generated. The open questions in questionnaires were also thematically analysed and used the same interpretive approach and paradigm. Using a critical realism approach allowed me to reconstruct applicants' experienced realities to understand the challenges that they faced.

My intention with this thesis is to go beyond highlighting the insights I have learned from the data and to use this information to take a practical approach and make recommendations for a range of stakeholders and practitioners to improve the support and opportunities provided to students from historically under-represented backgrounds. By incorporating my own experience as a practitioner in the field, I have intended to develop and facilitate an understanding between, and appreciation of the benefits of bringing together, scholarly activity and professional practice to guide approaches taken to improve student experiences and outcomes. (Jenlink, 2001).

2.2.3 One-to-one interviews

To better understand the application, transition, and on-course experiences of current students at Imperial College London's Medical School, one-to-one, semi-structured interviews were undertaken with 11 students currently studying undergraduate medicine. Interviewees represented all year groups (with experience of clinical as well as non-clinical elements of the programme as outlined in Chapter 1 section 1.9) and a range of educational backgrounds. Interviews were used to allow for expanded responses, to ensure that questions were understood correctly and allow the reframing/refocusing of questions accordingly, and to allow the opportunity to follow up questions to interrogate responses further. (Bogdan and Biklen, 1992). Interviews also allow us to better construct students' realities through back and forth conversation/clarification.

Interview participants were recruited via adverts on noticeboards at all medical school campuses and emails sent out via the School of Medicine Faculty of Education Office. As an incentive to participate, students could enter a prize draw for a £50 Amazon voucher after they completed their interview. A copy of the recruitment advert, participant information sheet and participant consent form are included as items A1-A3 in Appendix A. Recruitment was open to all undergraduate students on the 6 year undergraduate medical programme at Imperial College London, with the intention being to engage with a cross-section of students from all educational backgrounds and years of study. Choosing to keep the recruitment process open to students from all educational backgrounds was a purposeful approach that allowed comparison between the experiences and challenges faced between different students on the same medical programme.

Recruitment and interviews were ongoing between June and December 2016 and ceased once there was representation from each year group and thematic saturation was reached. Although, it would have been possible to set a target number of interviews and keep going with recruitment until that target was reached, as Baker and Edwards indicate in their 2012 paper, there is no straightforward way to decide "how many" is "enough" with qualitative research and the sample size is contingent on a number of epistemological factors and practical issues. The experts consulted in their 2012 paper could not achieve a consensus on the numerical value of "enough" but agreed that the answer will be different for every single project and the epistemological stance being taken. The paper suggests that whilst saturation of responses is the ideal, researchers should focus on ensuring they are able to answer their intended research aim with the responses they collect rather than focusing on a specific number. In the Baker and Edwards paper, Tracey Jensen suggests that having a quality of responses that enable quality analysis should be considered a more important factor than the number of responses. Eleven interviews were facilitated, taking place at

times and Imperial College London campus sites to suit participants. The breakdown of participants was as follows:

- 6 male participants, 5 female participants;
- 5 completed their A-Levels at a state comprehensive school or college, 4 at a state selective school, 2 at an independent, fee-paying school;
- 1 from year 1, 6 from year 2, 1 from year 3, 1 from year 4, 1 from year 5, 1 from year 6

Interview participants were assured of anonymity both in publication and internally to instil confidence that they could be open and honest in their responses without attribution or repercussion. Ensuring anonymity for interview participants aimed to facilitate open and vulnerable accounts within the empirical domain of critical realism's observable experiences. By providing a 'safe space' where responses could not be attributed to individuals, I was attempting to mitigate potential constraints on honest disclosure stemming from students' subjective contexts and perspectives. However, from a critical realism perspective, it is also important to recognise that anonymity is only one aspect at play that shapes how authentically students might respond to sharing their lived realities and experiences. For example, a student's own self-censorship or perceived stigmas or indeed trust in the researcher and their promise of anonymity will all impact the responses they give. As a researcher, I attempted to create an environment that was conducive to an authentic response in all the ways that were under my control (anonymity and setting) but kept in mind that there were also various aspects beyond my control that may influence how open students were when recounting their lived experiences.

When deciding the sample for one-to-one interviews, Imperial College London medical students were an obvious choice due to the relatively easy access with which they could be approached for this element of the research. However, an influencing factor was also so that I could develop a focused understanding of what the experiences and challenges have been for Imperial College London medical students and how outcomes of these conversations could directly drive change within the institution funding this PhD. They were a critical group to understand what can be done better specifically within one medical school that recognises the need to support the widening access and participation agenda.

In terms of choosing only to interview Imperial College London medical students (and not going out more widely to other medical schools), I recognised that these students would have experiences of applying to other medical schools as well as Imperial College London's medical school and so would be able to provide a broader perspective on the process than

simply talking about one medical school. Their comments would be generalizable in relation to the pre-entry aspect of the student journey because, undoubtedly, their experiences of applying to a range of medical schools will have been shared by students and applicants beyond Imperial College London's medical school student body.

Although, it was recognised that they would not be able to comment on the on-course student experience beyond Imperial College London's medical school, relative to the resource required to expand this aspect of the research, plus the primary focus of this PhD being on the challenges of widening access (which was considered a larger component of the project than the participation/student success aspect of the process), it was agreed with the supervisors of this PhD that it would be beyond the scope of this thesis to pursue a broader sample group for this particular aspect of the research.

In terms of the breakdown of students choosing to participate in the interview process, there is a skew towards second year students taking part. However, this was not deemed to be a major concern in this instance due to the context and nature of the interviews. Students were predominantly being asked to reflect back on their pre-entry experiences and so their year of current study should not have skewed their responses. Whilst it is acknowledged that entry requirements and resources available to applicants are always evolving, the process today is not beyond recognition for students who applied certainly two years ago and unlikely to be wholly dissimilar for students in clinical years and beyond. Rather it could be seen as an opportunity to look at if, and how, issues and challenges have changed over time. In addition, second year students were likely to have better recall of the process than students in years 3-6 of study because it was a more recent experience for them. All students were being asked to consider the same period in time that they all will have experienced, so their current year of study was thought unlikely to have a significant influence on their answers. However, it was thought key to ensure representation from all types of educational background to understand how that may (or may not) affect the experience.

Although the primary purpose of the interviews was to explore the pre-application and application phases of the student journey, I wanted to also give students an opportunity to consider their on-course student experiences and how these may vary between students from year groups and educational backgrounds. For this reason, I wanted to ensure that students from all year groups were included to take account of the on-course student experience from all levels of study. However, again, this was a lesser focus of this thesis and students across all year groups tended to reflect back on prior years of study as well as their

current years of study. Responses suggested that the earlier years of study were the critical time in terms of the student experience and supporting student success and all of the participants were able to reflect back on this particular period.

It is acknowledged that these interviews cannot encompass all of the challenges or viewpoints of students attempting to access medical education. Indeed, arguably, the participants in these interviews were the 'success stories' that achieved a place at a prestigious medical school and not the ones who were unsuccessful in getting an offer or a place at medical school confirmed. In addition, it is unlikely that eleven students can cover all of the challenges and issues faced by students on this journey. However, the responses allowed me to start to explore some of the common themes and challenges indicated by students who have been through the process and provided a launch point to develop other aspects of my research.

The focus and purpose of the interviews was to better understand the pre-entry, transition, and on-course experiences of the participants, particularly any challenges that they faced at each stage, how they overcame these and how they were supported or wanted to be supported. For me as the researcher, I wanted to understand whether the assumptions that are made within this particular medical school about the experiences that students have as applicants and students are cognisant with the students' lived realities so that we can identify any significant disparities that need addressing. The interviews took a semi-structured approach to allow interviewees to respond and add further comment as appropriate including changing the focus to incorporate additional points that they felt pertinent to the topic being discussed. A copy of the initial question template can be found in Appendix A as item A4. However, as is common with taking a semi-structured approach, the exact wording and order of questions varied from participant to participant and additional questions were asked and/or clarifications sought based on participant responses

This chapter will look at the pre-entry experiences discussed by interview participants. On-course experiences of interview participants are discussed in Chapter 4.

2.2.4 Student Focus Groups

In order to enhance understanding and reflection on the pre-entry experience, focus groups with Year 12 students currently involved in the HE application process were also undertaken. Speaking to students currently researching and navigating the process allowed a comparison of how experiences, support, influences, and other factors have (or haven't) changed over time compared to the current students who were interviewed (section 2.2.3)

and, by definition, had been successful with their applications to medical school. Focus groups were undertaken with students in Year 12 at a range of institutions across London and the South East. The groups were facilitated at the school, college or sixth-form that the participants attended and on days and times suggested by the staff contact at the host institution. It was important to capture the views of several students from the same institution so that areas of consensus amongst the students could be identified and used in comparisons between schools from different educational sectors. From a critical realism view, exploring the lived realities of applicants currently going through the process provides a useful comparator to those who have been through the process and are reflecting back with, hopefully, less heightened emotions but potentially a more rose-tinted perspective. Due to student timetabling and the logistics of travelling to institutions to engage with participants, it was agreed that focus groups rather than one-to-one interviews would be the most appropriate form of data capture and would be most conducive to maximising the number of responses.

Recruitment was a two-step process: institutions were first recruited, and then students. Recruitment of schools, sixth-form colleges and Further Education colleges was predominantly via the Imperial College London Outreach team monthly e-newsletter. The e-newsletter reaches a national audience of teachers and careers advisors within schools, sixth-form colleges, and colleges. It is important to note that not all institutions that receive the e-newsletter have participated in outreach activity at the College and that a large majority have not engaged but have chosen to receive updates and information via this format. Thus the focus groups were not influenced by a predominance of participants that had been engaged in outreach at the College. As with the interviews, students from a range of educational backgrounds were sought in order to capture a range of experiences and challenges. As such, recruitment of institutions also extended to contacts held by colleagues that worked in an Information, Advice and Guidance capacity with non-outreach schools that included institutions in the selective and independent sector. A copy of the recruitment advert for institutions is included as item A5 in Appendix A. Copies of the participant information sheet and participant consent form are also included in Appendix A as items A6 and A7.

Recruitment of participants was carried out by schools, usually through their Head of Year 12 or careers advisor, and criteria for participants was specified as follows:

- Mix of females and males (if your sixth-form is mixed);
- Intending to go on to Higher Education within 2 years of completing their post-16 studies;

- Studying subjects commonly required for a medical degree (i.e. Biology and Chemistry);
- Expecting to obtain at least ABB in their A-Levels (or equivalent);
- A mixture of students intending to pursue a medical degree and not intending to pursue a medical degree (or not sure yet of what they want to do);
- A mixture of students who may or may not have participated in extra-curricular or outreach activities delivered by universities to support their decision-making.

These inclusion criteria were designed to attract a range of students who were considering applying to university, would be eligible to apply to study medicine based on their academic qualifications, but were not necessarily considering applying to medical school. This approach was taken to help better understand what deters students from considering medicine as a viable pathway for them, as well as what the challenges and experiences are for those who choose to apply to medical school. From a critical realism perspective, it isn't enough to explore the barriers for applicants trying to navigate a medical school application. In order to fully understand the challenges of widening access to medical education we must also attempt to explore the thought process and barriers perceived by people put off applying at all even though they potentially meet eligibility criteria to do so. Although the institutions didn't always adhere strictly to these criteria, a large majority of the participants did fulfil these requirements, allowing meaningful analysis and comparison. Recruitment and focus groups took place between January and July 2017 and ceased when a cross-section of institution types and thematic saturation had been achieved. Seven focus groups with Year 12 students were facilitated at various institutions across London and the South East. A breakdown of participants is as follows:

- 20 male participants, 32 female participants;
- 23 attending state schools or colleges, 18 attending selective state schools, 11 attending independent, fee-paying schools;
- 22 intending to apply for medicine, 15 intending to apply for another science subject, 9 intending to apply to another course or post-18 option, 6 intending to apply to go to university but unsure as to which degree programme they want to pursue yet;
- 0 studying just A-Level Biology, 4 studying just A-Level Chemistry, 33 studying both A-Level Biology and Chemistry, 15 studying neither A-Level Biology nor Chemistry

Participants were assured that their comments would not be attributed to them individually or fed back to their school, and that, beyond staff and other participants at their school who were already aware of their participation, anonymity would be maintained on publication.

Resources made it unviable to facilitate focus groups beyond London and the South-East so there may be a bias in the responses towards experiences and challenges in these particular geographical areas. However, the online questionnaires outlined in section 2.2.5 below were distributed much more widely and identified similar issues, suggesting that geography has less of impact on the experiences and challenges of the medical school application process than other factors. What was important about the schools/sixth forms that made up the sample for the focus groups is that they represented the different educational backgrounds and resources that this thesis is centred on – i.e., independent, state comprehensive and state selective. This allowed a comparison of the lived experiences, realities and challenges across different educational structures.

The focus and purpose of the focus groups was to understand the decision-making process of students currently investigating their Post-18 options and review the information and advice used and required to make an informed choice. It was also to understand the lived experiences and challenges that students face in making these decisions, particularly in respect to navigating the process of applying to study medicine if they were choosing to do so. As with the interviews, a semi-structured approach was taken with the focus groups and the same considerations apply (see section 2.2.3). A copy of the initial question template can be found in Appendix A as item A8.

2.2.5 Online questionnaire

Denscombe (2014) suggests that there are four aspects that make surveys an effective method of data capture: 1) they allow the collection of data from a large number of people 2) they have clear and narrow targets of the information they are trying to collect 3) they effectively collect relatively uncomplicated facts, thoughts, feelings or behaviours 4) they are useful when looking for patterns of activity within groups or categories of people (rather than individuals) such as social classes, age groups etc.

The initial findings of the interviews and focus groups were used as a basis to identify the themes and pertinent issues to participants and to design an exploratory online questionnaire focused on these issues targeted at Year 11 to Year 13 students nationwide using a cluster sampling approach. Having first identified the common themes that came out of the interviews and focus groups, these were then discussed with the supervisors of this thesis and transformed into questions that would be suitable for an online questionnaire. The questions were subsequently reviewed by the supervisors, considering their different quantitative and qualitative expertise and then revised in response to supervisory comments before being finalised and published in the questionnaire. The premise for the questionnaire

was to develop a wider evidence base to corroborate (or otherwise) the findings from the one-to-one interviews and focus groups. It was important to use a critical realism framework to explore whether the overarching findings from the interviews and focus groups could be applied beyond the small geographical area in which they had taken place or whether the lived experiences and realities of students in other parts of the country were vastly different to those of students in London and the South East. Of course, students that had participated in the interviews were not necessarily all from London or the South East originally themselves. They were studying in London at the time they were interviewed but many had not been living in London at the time that they applied so there was a relative degree of confidence that the issues raised would not just be localised to London and the South East. However, the questionnaire was an opportunity to confirm this.

Although, by their very nature, questionnaires do not elicit responses in the same in-depth way that face to face interaction does, they do provide scope to collect data from a much wider audience. When designed well and with a clear purpose they can be a valuable source of support for smaller scale qualitative findings (Denscombe, 2014).

Targeting the questionnaire to a wider target audience was intended to expand on the findings around decision-making process and challenges faced by students when considering post-16/18 options and applying to study medicine; allowing identification of the most prominent elements, issues, support mechanisms and support required. Although the questionnaire approach does not allow the depth of questioning that the interviews or focus groups do, it was helpful in increasing the number of responses to more structured questions that had been determined by the responses to the interviews and focus groups.

The questionnaire was designed to ask slightly different questions of students in different school years because their experiences were expected to be different. Questions were thus designed around the same theme but written to be relevant to the students' experiences to date. For example, Year 11 and Year 12 students were not asked about their experiences of interviewing for medicine as they would not have reached that stage of the application process yet, but Year 13 students were asked questions focused on interviewing for medicine. A copy of the complete question set for Year 11, Year 12 and Year 13 students is included in Appendix A as items A9-A11. The questionnaire allowed development of a bigger picture across the spectrum of educational backgrounds and stages of education.

The questionnaire was designed on an online platform and was open to responses between January and April 2018. The link to the questionnaire was sent out via email to all UK

secondary school and college contacts held by the Imperial College London Outreach team as well as UK secondary school and college contacts held by the researcher. It was also included in the monthly e-newsletter distributed by the Outreach team. As with the focus groups and interviews, the questionnaire was not restricted to a particular type of educational establishment (i.e. state comprehensive, state selective or independent schools and colleges) so that there would be an opportunity to compare responses between the different school types. A copy of the text for the email and e-newsletter that was sent out to schools and colleges is included in Appendix A as item A12. Please note, this is an email template and the actual text sent out may have varied slightly to personalise the information, but the criteria for participation remained consistent. To support participation rate, students could also opt to be entered into a prize draw for one of three £50 Amazon vouchers on completion of the questionnaire. In order to be entered into the prize draw, participants had to submit their email address but this information was not used for any purpose other than to administer the prize draw.

Schools were once again asked to send the questionnaire out to target students as follows:

- Students in Year 12 and Year 13 who are undertaking A-Levels that would make them eligible to apply to study medicine (even where grades may not be achieved or where they have decided not to opt for medicine). I.e. they are studying at least A-Level Chemistry and likely also Biology. At the time this questionnaire was sent out, the vast majority of medical schools required A Level Chemistry as an essential qualification over and above A Level Biology, though this has since changed with the opening of new medical schools.
- Students in Year 11 who have applied for or are likely to select appropriate subjects for medicine at A-Level.
- Students in Year 11 who have performed well/shown strong interest in the sciences at GCSE level even if they have not selected to pursue all of the appropriate subjects for medicine at post-16 level.

There were no specific exclusion criteria, so all responses to the questionnaires, even if they did not adhere strictly to the preferred criteria above, were included in the analysis as long as they had completed a sufficient proportion of the questionnaire to deem it a viable response (see section 2.3 below).

The questionnaire was designed using a combination of open, closed and Likert scale questions. Open questions allow a respondent to reply without restrictions as to what their response should be. They usually take the form of free-text boxes which respondents input

whatever they feel is the most appropriate response. This format of question is useful in allowing uninfluenced and unrestricted responses to questions, allowing opportunity to provide more information than closed questions offer and potentially identifying issues not covered in the closed and Likert scale questions, which, no matter how well designed, have been shaped around the researchers own agenda (Decorte et al, 2019; Biemer and Lyberg, 2003; Considine and Zappala, 2002). Open questions allow items to be added to the legitimate agenda of the research study. (Decorte et al, 2019) However they also require more effort from the respondent who needs to think up a response rather than select one. If too many of this type of question are used it can lead to respondent "fatigue" and very short responses or, indeed, questions being ignored completely. Participants may decide it isn't worth their time to complete any more of the survey and simply stop (Biemer and Lyberg, 2003).

Closed questions direct respondents towards selecting from a set number of responses. This approach has the advantage that respondents can quickly select an answer and move on without taking up too much of their time in constructing a response; responses are easily quantifiable as you can measure how many respondents have selected each option, and it also allows for the answer options to be designed to emulate or enhance the qualitative research findings (Hyman and Sierra, 2016). However, there are a number of disadvantages to the use of closed questions. Such questions do not elicit detailed responses from the respondent or allow them to disagree with the options available to them. They also run the risk of being leading where options are made available that the respondent hadn't necessarily considered prior to answering the question (Hyman and Sierra, 2016). Whilst this type of question is useful in developing a quantitative dataset that builds on qualitative work, it also shouldn't be used in isolation so that respondents have the opportunity to expand their responses beyond the options available to them. In the case of this questionnaire, this also meant providing an "other" box for closed questions, where appropriate, and an opportunity to expand on responses (for example, please tell us why you selected option a). (Decorte et al, 2019; Hyman and Sierra, 2016)

Likert Scale questions ask respondents to measure their inclination towards or against something, usually on a numerical scale. This type of question is useful when there is a specific issue or theme that you want to explore and when it would be beneficial to be able to quantify the likelihood of something occurring or the respondent taking a particular action. Likert Scale questions are useful supplementary questions to further quantify something you are already aware of, but they are not useful to capture new information. (Denscombe, 2014).

The decision to use a combination of these types of questions was taken for a number of reasons as follows:

- The closed and Likert scale questions allowed an unambiguous focus on areas that came up as prominent from the qualitative research outlined in sections 2.2.3 and 2.2.4.
- The closed and Likert scale questions provided easily measurable responses that could be quantitatively analysed and used to provide further evidence in support of (or otherwise) findings from the earlier qualitative research.
- The open questions allowed collection of new in-depth data to map against the qualitative research, to identify similarities but also differences and any new, pertinent issues that may need further exploration.

The same online questionnaire link was used for all three year groups. However, questions were automatically filtered based on prior responses, including which year group the student was in, to ensure questions were phrased appropriately and/or were relevant. For example, Year 13 respondents were asked about whether they had received any offers of a place from universities/medical schools but Year 11 respondents were not asked this question because they were not yet eligible to apply.

Analysis of the free text sections of the questionnaire was completed by aggregating the responses of the state selective and independent sector participants to compare with the responses of the state comprehensive sector participants. Given the relatively small number of responses from students at independent schools (28 out of 669, from 10 different schools), there were concerns that analysing data from this group as a separate category might lead to conclusions that did not represent the wider sector. In order to ensure that the independent sector responses were still captured in the process it was decided that their free text responses should be merged with one of the other two categories. From earlier analysis of interviews and focus groups, and the fact that, from my experience of working in WP and outreach, state selective schools and independent schools are often treated in a similar fashion by universities when targeting outreach programmes etc. it was decided to merge these two groups so that independent sector free text responses were looked at alongside the responses of the state selective sector respondents to compare to the state comprehensive sector respondents. For many WP initiatives that I was involved in as a practitioner, students would not be considered to be from historically under-represented backgrounds if they attended a state selective school as they were more likely to have access to better quality resources in their schools than those students attending a state

comprehensive school. Therefore, in the same way as students from the independent school sector, students attending state selective schools were not usually eligible to participate in WP programmes or fall under the WP category used by HEIs. In the analysis, the state comprehensive schools were treated as the historically under-represented/WP group and the state selective and independent schools as traditionally better represented/non-WP. Although the state comprehensive sector respondents are being treated as the historically under-represented group, it must be acknowledged that not everyone in this group will fit under the umbrella of the historically under-represented, though they are more likely to do so than state selective and independent sector respondents. This is because state comprehensive schools are typically more poorly resourced with regard to careers in medicine. Students from all school sectors may have access to resources outside of their school setting that we are unaware of, however, this thesis takes the approach that students from state comprehensive schools are least likely to have access to such additional resources and thus should be classed as historically under-represented. Comparisons between historically under-represented/WP and traditionally better represented/non-WP here are perhaps best viewed as a reflection of the level of support that each type of school is likely to be able to offer rather than of the specific demographics of individuals. Thus, while the analyses of the questionnaire data provide interesting points for consideration, they should be treated cautiously, with further, more specifically targeted work required to confirm these findings.

In a majority of cases (unless stated) the responses for each year group were assessed separately. For example, Year 11 state comprehensive sector responses to a question were only compared to Year 11 state selective and independent sector responses to a question and not to responses from Year 12 and/or Year 13 students asked the same/similar question. Responses were coded thematically using Microsoft Excel to chart, group and assign free text comments according to similarity and frequency. Where a response raised more than one point or crossed more than one theme or issue, these were marked as separate entries in both categories. Where responses made up a fractional margin of the overall results (i.e. only 1 or 2 people had given that response and so it comprised ≤ 1% of overall responses) these were grouped together under an “other” category and were only included in the final analysis where helpful to do so.

Not all of the questions asked in the survey have been reported on in this thesis. This is because, by the time it came to analysis, some of the questions were no longer relevant to the direction that the thesis had taken and so were not able to contribute to the discussion. There were also some questions that had only received one or two responses in total which

it was agreed by the supervisors of this thesis would not be suitable for inclusion as the responses were likely to skew the data. There were also a number of questions related to either demographics or educational profile (i.e., what subjects respondents had or were studying) which it was later decided was beyond the scope of this thesis and so have not been included in the analysis below.

2.2.6 Teacher and Careers Advisors Focus Group

In order to understand the student responses in the context of their schools and teachers' perspectives, a decision was made to design and facilitate a focus group with teachers and careers advisors involved in or influencing the application process for medicine within their schools. The purpose behind this decision was to understand the challenges and issues that they faced as staff in supporting their students through the process, what their perception was of the challenges for their students, and to be able to compare their issues and perceptions to those shared by students with regards to school support. Using a critical realism framework, we were trying to find out the reasons for some of the issues that students highlighted as being the school's 'fault' from the perspective of school staff and to explore where issues and opinions diverged from the students. A focus group format was chosen rather than an interview format, partly due to time and logistics, and partly because it was felt that a focus group format was less intimidating and accusatory, and more conducive to conversation.

The target group for this focus group was much smaller than for the student focus groups, with only one or two members of staff per school likely to be involved in supporting students with the process of applying to medicine. As such, unlike the student focus groups, this focus group was held in the early evening at Imperial College London's main South Kensington campus and teachers and careers advisors from all types of post-16 educational establishment were invited to attend one focus group together. Participants were also invited to attend an Information, Advice and Guidance (IAG) session on medical applications as part of the evening. Recruitment was once again through the College outreach team's e-newsletter and contacts. A copy of the recruitment advert and email can be found in Appendix A, as item A13 along with a copy of the participant information sheet and participant consent form as items A14-15. An outline of the joining instructions sent out to participants is also included in Appendix A as item A16 and a template of the semi-structured questions used for the focus group is included as item A17. Eight teachers and careers advisors, representing the state comprehensive (4 staff members), state selective (3 staff members) and independent (1 staff member) sectors attended the focus group.

This chapter will focus on the key themes and issues that were discussed and raised in relation to the pre-applicant and applicant experiences of respondents across all three of these data capture processes. The results of the focus groups and one-to-one interviews were used to design the questionnaire. Section 2.3 is the first results section of this thesis and is largely structured around the findings from the thematic coding of the free text sections from the questionnaire, as the largest dataset, to identify key themes and outputs. It also incorporates responses from the one-to-one interviews and focus group to substantiate (or otherwise) the questionnaire findings and includes quantitative aspects of the questionnaire as relevant. It is recognised that, if we were to count the total number of Year 11-13 students in any given academic year, the sample size for the questionnaire is very small which is why absolute numbers have been included in the analysis of free text responses. It is, however, also reasonable to surmise that only a small group of students will want to study medicine and have the aptitude to do so, which allows us to assume that findings from the questionnaire are not completely baseless. In order to ensure that findings from the questionnaire were able to be usefully shared whilst also avoiding over-interpretation of the data, detailed discussion of free text responses has been limited to only those where there is coherence or stark difference between groups of respondents.

2.3 Results and key findings

The questionnaire received a very positive response. There were a total of 1198 responses, 676 (56.4%) of which were taken forward for analysis as these participants had completed at least 75% of the questionnaire. 522 (44%) participants had not completed a minimum of 75% of the questionnaire and, as such, their responses were not used for further analysis. A threshold of 75% completion had been agreed with the supervisors of this thesis, on the basis that, because the questionnaire was designed to run in a particular order and responses to a majority of questions was mandatory in order to move on to the next section, if participants hadn't completed at least 75% of it, then they hadn't responded to a number of the key questions that addressed the crux of the purpose of the questionnaire which would impact the quality of the response (Biemer and Lyberg, 2003). Of the 676 eligible participants, a further 7 responses were removed from the analysis as it was not possible to establish which type of school they attended (this happened where there were multiple schools with the same/similar names belonging to different educational sectors or where the school name had not been inputted accurately or completely). Thus a total of 669 (55.8%) responses from across 108 different schools were analysed across all question areas.

In relation to the responses that were eligible for analysis, the breakdown of participants was as follows:

- **439** (66%) participants from state comprehensive schools and colleges.
- **202** (30%) participants from state selective schools and colleges.
- **28** (4%) participants from independent, fee-paying schools and colleges.
- **120** (18%) participants in Year 11 at time of participation.
- **417** (62%) participants in Year 12 at time of participation.
- **132** (20%) participants in Year 13 at time of participation.

Of the 132 Year 13 respondents that responded, 92% of those from the state comprehensive sector and 91% of those from the state selective sector intended to apply to UCAS for 2018 entry.

Figure 2.01 shows a breakdown of participants by home region. A large majority of the respondents were from the Greater London and South East regions of England so it is important to note there may be a regional bias to these responses that isn't necessarily reflected more widely across the UK.

Figure 2.01

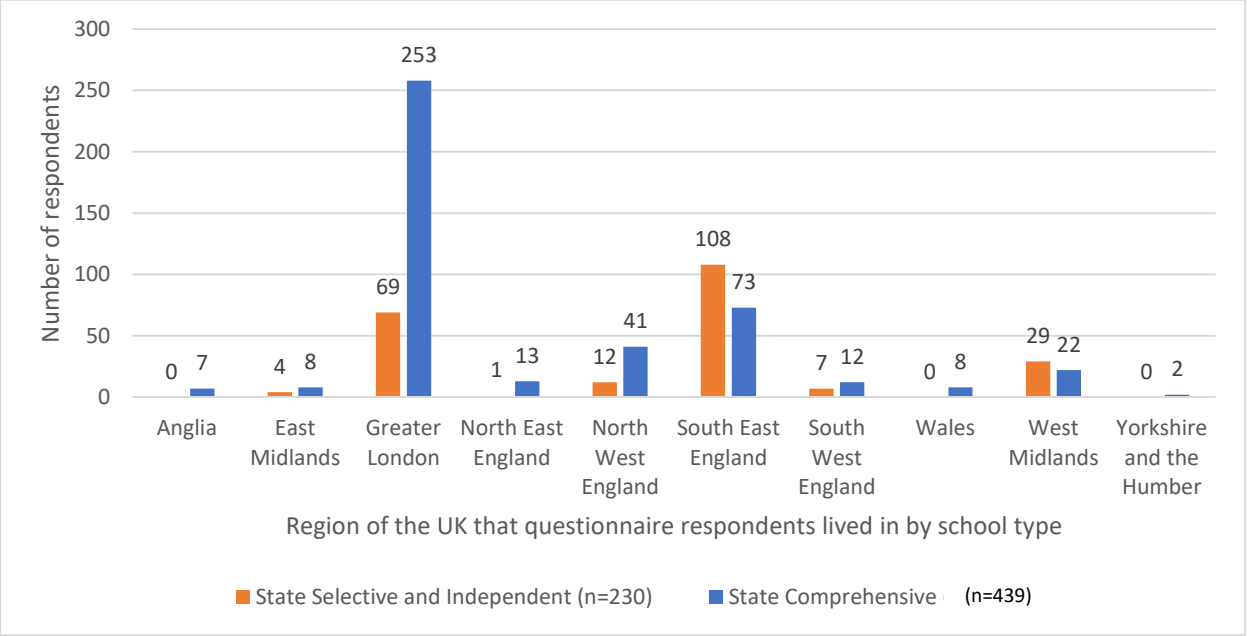


Figure 2.01: Which region of the UK do you live in?

Bar chart showing the number of responses within each category from Year 11, 12 and 13 respondents to the question *'What region of the UK do you live in?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 439). Orange bars depict responses from participants from the state selective and independent sectors (n = 230).

Figure 2.02 shows whether respondents had family history of Higher Education through their parents. It is interesting to note that 73% of respondents from the state selective and independent sector indicated that at least one parent had a HE qualification compared to 54% of respondents from the state comprehensive sector.

Figure 2.02

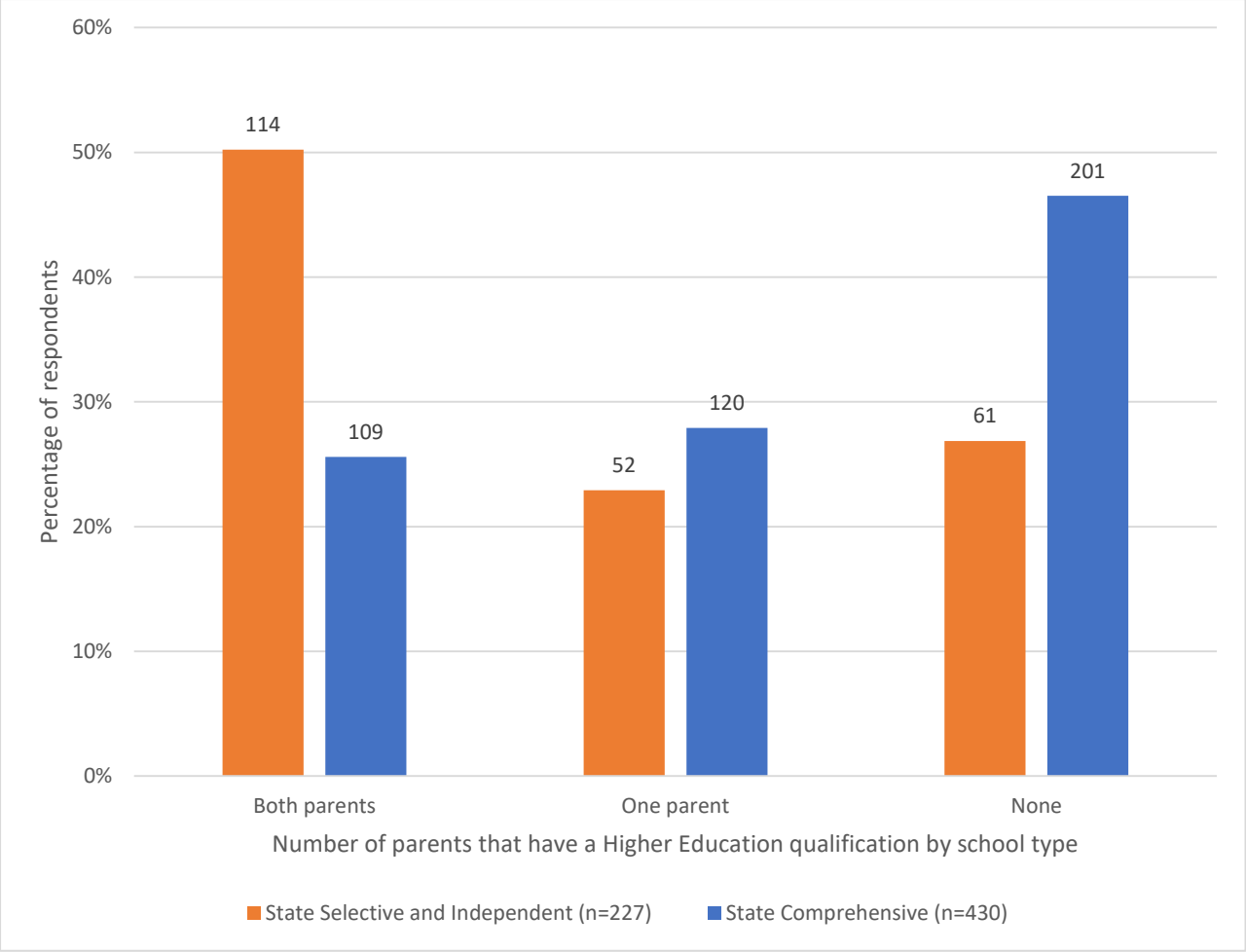


Figure 2.02: Have either of your parents attended university?

Bar chart showing the percentage and number of responses within each category from Year 11, 12 and 13 respondents to the question *'Have either of your parents attended university?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 430). Orange bars depict responses from participants from the state selective and independent sectors (n = 227).

2.3.1 The challenges of navigating the post-18 landscape

2.3.1.1 Deciding to study medicine

As discussed in Chapter 1, the education system in England means that students start specialising from a young age and therefore start to make decisions that may affect their future from a young age as well. The first key decision making stage comes in the form of choosing GCSE options at the end of key stage 3 as students transition into key stage 4. The negative impacts that a 'bad' decision at this stage may have on students' ability to later pursue a medical education have been minimised by changes made in 2015 which removed the option to only study single award science. Aside, possibly, from extraordinary cases where there are other health and wellbeing factors that may affect a student's ability to undertake all of their GCSEs, the minimum science requirement for GCSE is now double award science, which would allow students to choose to study A-Level sciences. Thus, in the case of decision making stages that may impact a student's ability to pursue a medical career, the first key decision and transition point is at key stage 4 (Year 11) when students must decide on their Post-16 options. In the case of wanting to pursue medicine, this usually means choosing to study both Chemistry and Biology at A-Level (or equivalent).

By Year 11, it appears that students are actively beginning to make decisions about their future. From the Year 11 respondents to the questionnaire, 53% said that they had made a firm decision on what they wanted to do after Year 13 whilst a further 30% were considering a few options. Only 17% said that they had not yet made a decision on this. When questioned on this further, over 95% were planning on studying at university or considering it as one of their options which is in line with responses from Year 12 and 13 students to the same question. Supporting information can also be found in figure B1 in Appendix B showing broadly similar responses from both the state comprehensive and state selective and independent sector respondents when asked about whether they had started to think about applying to university.

A similar question was then asked about medicine specifically. Figure 2.03 shows responses from questionnaire respondents in Year 11, 12 and 13 about whether they were or had considered medicine as a course/career option.

Figure 2.03

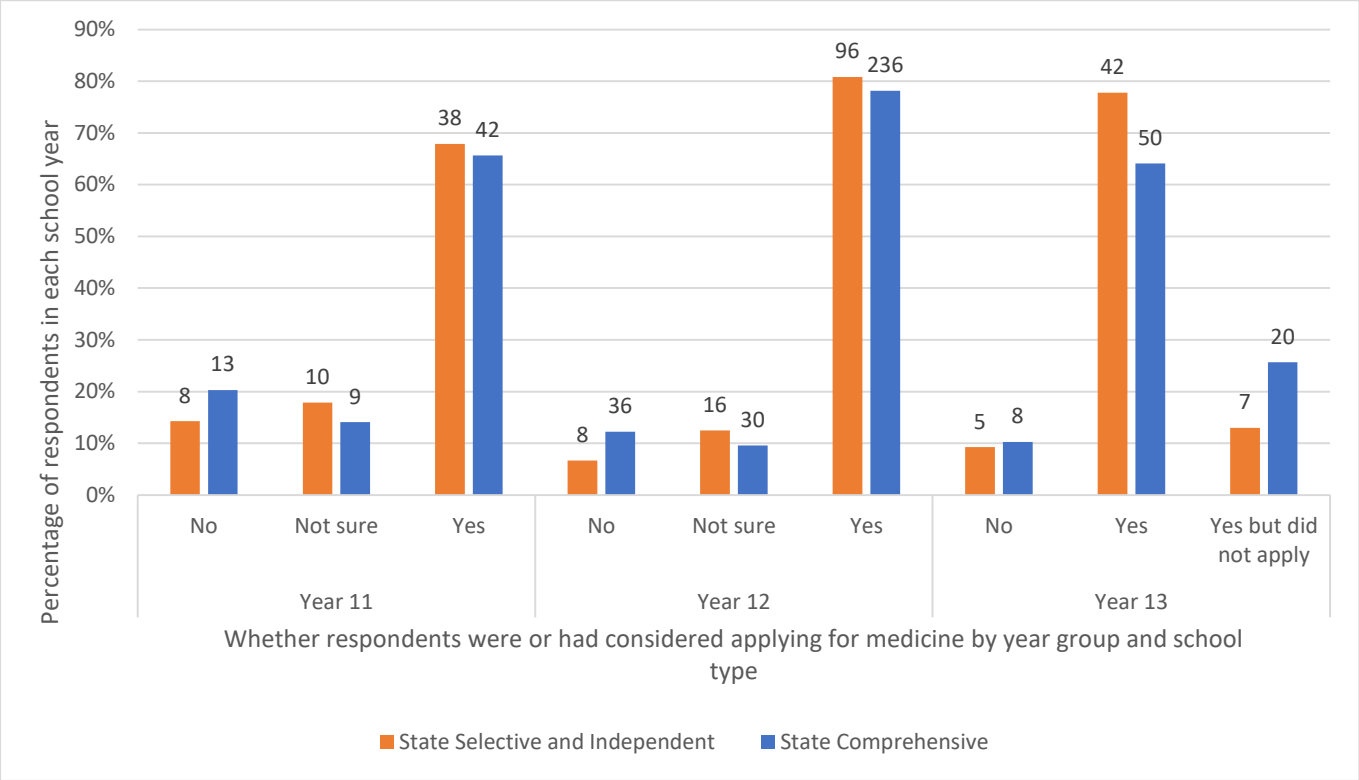


Figure 2.03: Are you considering/Did you consider medicine as a course/career option?

Bar chart showing the percentage and number of responses within each category from Year 11, 12 and 13 respondents to the question '*Are you considering/Did you consider medicine as a course/career option?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (Year 11, n = 64; Year 12, n = 302; Year 13, n = 78). Orange bars depict responses from participants from the state selective and independent sectors (Year 11, n = 56; Year 12, n = 120; Year 13, n = 54).

Once again, responses were broadly similar between the different school types, with no obvious differences until Year 13. Double the proportion of Year 13 respondents from the state comprehensive sector, compared to the state selective and independent sector, reported having considered medicine but not applying, which is a concern for widening access and reaffirms the premise of this thesis that there are additional challenges for students from historically under-represented backgrounds. From a critical realism perspective, this could have been due to their Year 12 results taking them out of contention to apply for medicine as much as the process itself. However, it is not something we can confirm or should make assumptions about.

As discussed in Chapter 1, early decision-making can be advantageous to the process of securing a competitive university place. With this in mind figure 2.04 shows responses from the questionnaire across Year 11, 12 and 13 about when they made their decisions about post-18 options.

Figure 2.04

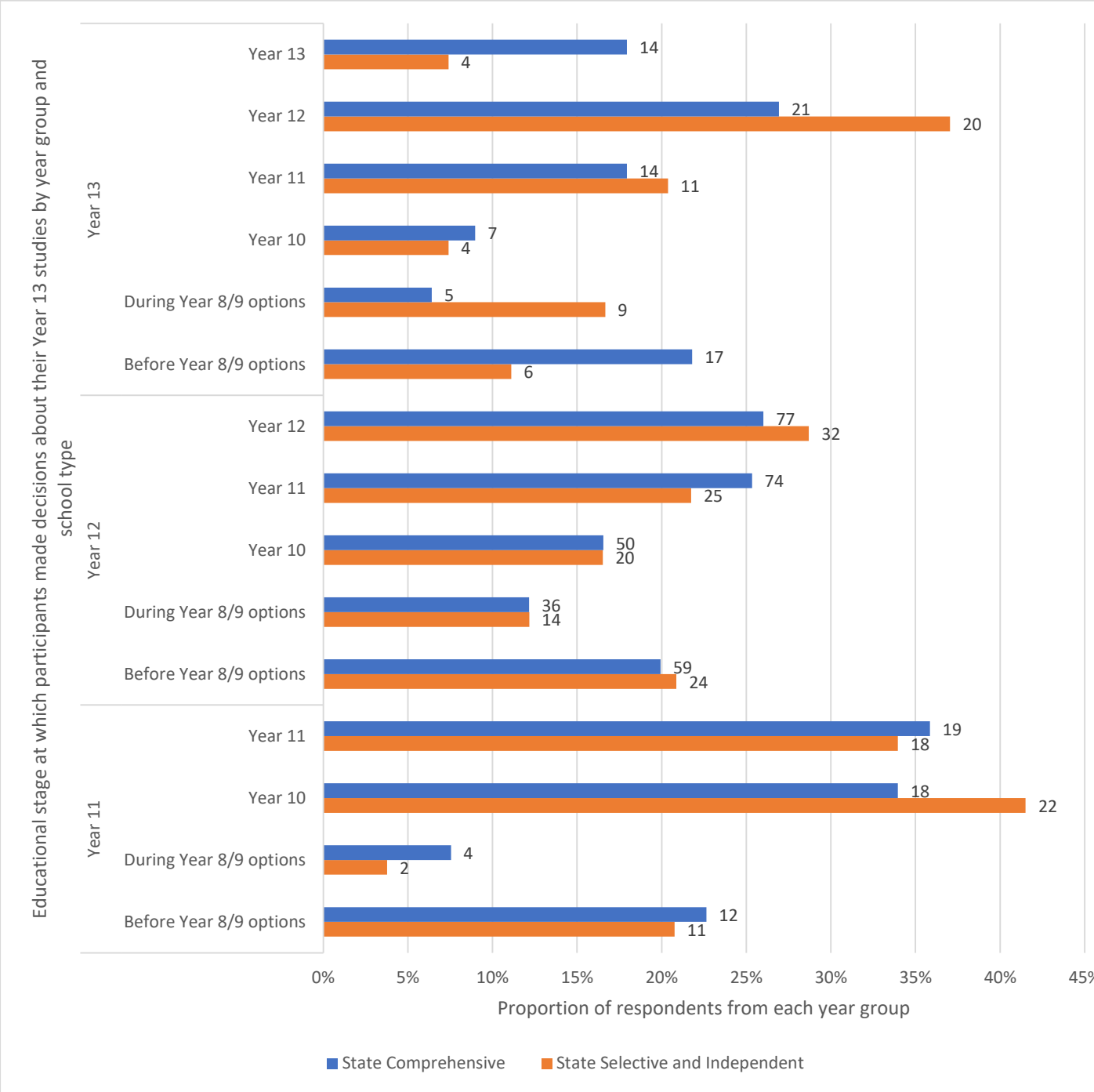


Figure 2.04: When did you make your decision about what to do after your Year 13 studies?

Bar chart showing the percentage and number of responses within each category from Year 11, 12 and 13 respondents to the question *'When did you make your decision about what to do after your Year 13 studies?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (Year 11, n = 53; Year 12, n = 296; Year 13, n = 78). Orange bars depict responses from participants from the state selective and independent sectors (Year 11, n = 53; Year 12, n = 115; Year 13, n = 54).

There are a few points of interest in figure 2.04 to discuss here. One is the consistent proportion of respondents from Year 11, 12 and 13 saying that they had made their decision

before their year 8 or 9 options, particularly amongst state comprehensive sector respondents where between 20-23% of respondents in each year group selected this option. It appears that a fairly consistent proportion of students do make their decisions at a young age and stick with those decisions.

Another point to note from figure 2.04 is how the stage at which decisions have been made shift to later stages when you compare responses of each year group. 70%+ of the Year 11 respondents said that they had made their decisions in Year 10 or Year 11 compared to 39-42% of Year 12 respondents and just 27% of Year 13 students. This suggests that although students in Year 11 and, to a certain extent, Year 12 may perceive that they have made their final decisions about what to do after Year 13, and that they did so in year 11 or earlier, they are likely to change their mind as they progress through their education. This could be due to a number of reasons, including more exposure to careers guidance or how much they enjoyed a subject once they started studying it at Post-16 level, but is important to note in the context of medical education. Medical schools may be missing out on students who, in Year 11, have decided to pursue a non-medical or non-scientific pathway, only to later decide that they wanted to study medicine but are not studying the right subjects to do so. Thinking about how students can be better supported to make informed decisions at an earlier stage or not limit the scope of what they can do with their chosen post-16 subjects will be important aspects of supporting widening access to medical education to students that wouldn't necessarily think about, or be supported to think about, studying medicine before they choose their post-16 options. Considering this through a critical realist lens, there are possible underlying causal mechanisms that may also impact the advice and guidance students in the state comprehensive sector receive. State comprehensive schools are publicly measured on their assessment results, therefore, where post-16 advice is delivered by teaching staff, they are unlikely to encourage students towards the sciences at A Level unless they have shown particular promise or enthusiasm at key stage 4. Careers advisors are more likely to objectively provide factual information on what limitations a student might be placing on themselves with their key stage 5 selections but fewer state comprehensive schools have specifically designated careers advisors.

Finally, and very briefly, from figure 2.04 it is useful to note that more than twice the proportion of state comprehensive sector respondents in Year 13, compared to their peers in the state selective and independent sector, said that they did not decide what they wanted to do after Year 13 until Year 13. This should be of concern from a widening access to medical education perspective because there are likely more students from historically under-

represented backgrounds who are not making a decision on their future career until Year 13 when it is likely to be too late to make a considered application to study medicine.

Discussions around decision-making and timeliness of decision-making also came up in the qualitative aspects of this project, particularly in the one-to-one interviews. Most interview participants suggested that Year 11 is the first time that they and their school peers seriously started to think about their future and options. However, although this was not a question explicitly put to them, there were unprompted contrasting perceptions from participants as to whether Year 11 was "early" or "late" in the process, with very few people suggesting it was the "right" time to be thinking about it.

"So when I first decided to do medicine it was after GCSEs, making A-level choices and sort of thing. So quite late I would probably imagine, compared to some people"
Quote from one-to-one interview participant 2, state selective school attendee, regarding when they first started to consider their post-18 options and studying medicine.

"So, when I initially looked at it [studying medicine]….this is like really early, like in year 11"
Quote from one-to-one interview participant 3, state selective school attendee, regarding when they first started to consider their post-18 options and studying medicine.

This perception of Year 11 not being the right time to make decisions and being either "early" or "late" perhaps supports the responses in figure 2.04 where Year 13 students had significantly moved away from suggesting that they had made their decisions in Year 11. It is also useful for medical schools to know that this may be a year group to work with in terms of targeting widening access initiatives effectively. Year 11 is a key decision-making stage and even if students do not feel able to make a decision on their future career at this stage, it is important that they are aware of what they might be excluding themselves from with their post-16 choices.

Participants in the questionnaire were asked who had helped them make their decision to see what sources of support they were using to access information. The most popular response across all year groups in both sectors was parents, followed by other family members. To a lesser extent, Careers Advisors (either within school or external), teachers and friends were all also cited as people who had helped respondents to make their decision. Whilst these responses are unremarkable in themselves, it is important to look back at figure 2.02 which shows parental experience of HE. Almost half of respondents from the state comprehensive sector said that neither of their parents had been to university. Whilst this in itself does not mean that those parents should not be used to support decision-making, it is important for medical schools, widening access and student recruitment teams

to be aware that it is not just potential students that may need support and guidance through the HE decision-making and application process, but also their parents who are being called on to support and inform the process. In a previous professional role that I worked in, in widening access and outreach, I regularly ran a HE advice evening for parents of year 9-11 students from state comprehensive and state selective schools to support them in understanding the decisions and processes that their child would be going through and how they can support them as key influencers. This was very well received by parents, many of whom had never been to university themselves or who had completed their degrees overseas in a very different system to the UK. They said that they had struggled to provide the advice their child needed and were not always sure where to find the best or most accurate advice. This would undoubtedly still ring true now, particularly for specialisms such as medicine, and it would be useful to consider ways in which HEIs can support delivery of IAG to parents as well as students.

Questionnaire participants were then asked to consider how much they had already engaged with the process of researching HE options. When questioned, although slightly more Year 11 and Year 12 respondents from the state selective and independent sector said they had started to research the process of applying to university, over 80% of respondents from the state comprehensive sector had also responded to say they had. Figure B3 in Appendix B provides more detail.

As mentioned in chapter 1, one of the aspects that makes medicine a more difficult degree programme to access than some other vocational programmes is the need to ensure early science specialisation and various additional requirements to support the application. With this in mind, the questionnaire participants were also asked whether they had researched the entry requirements for medicine. In asking this, I was trying to establish to what extent students, particularly those who had said they had already decided what they wanted to do with their future, had proactively started to explore what was required of them in order to achieve their goals and whether there was any significant difference in responses between the sectors. The earlier a student knows what is required of them to apply to study medicine, the more likely they are to make informed choices at key decision-making stages and the more time they will have to plan and prepare for all aspects of the application process. In the empirical domain of critical realism, state comprehensive school students are the least likely to be prompted to research the requirements for medicine at key stage 3 or 4, either by their school due to under-resourcing in terms of careers advice or by their parents/other key influencers if they have no prior experience, knowledge or links to HE

and/or the medical field. Figure 2.05 shows responses from the questionnaire across Year 11, 12 and 13.

Figure 2.05

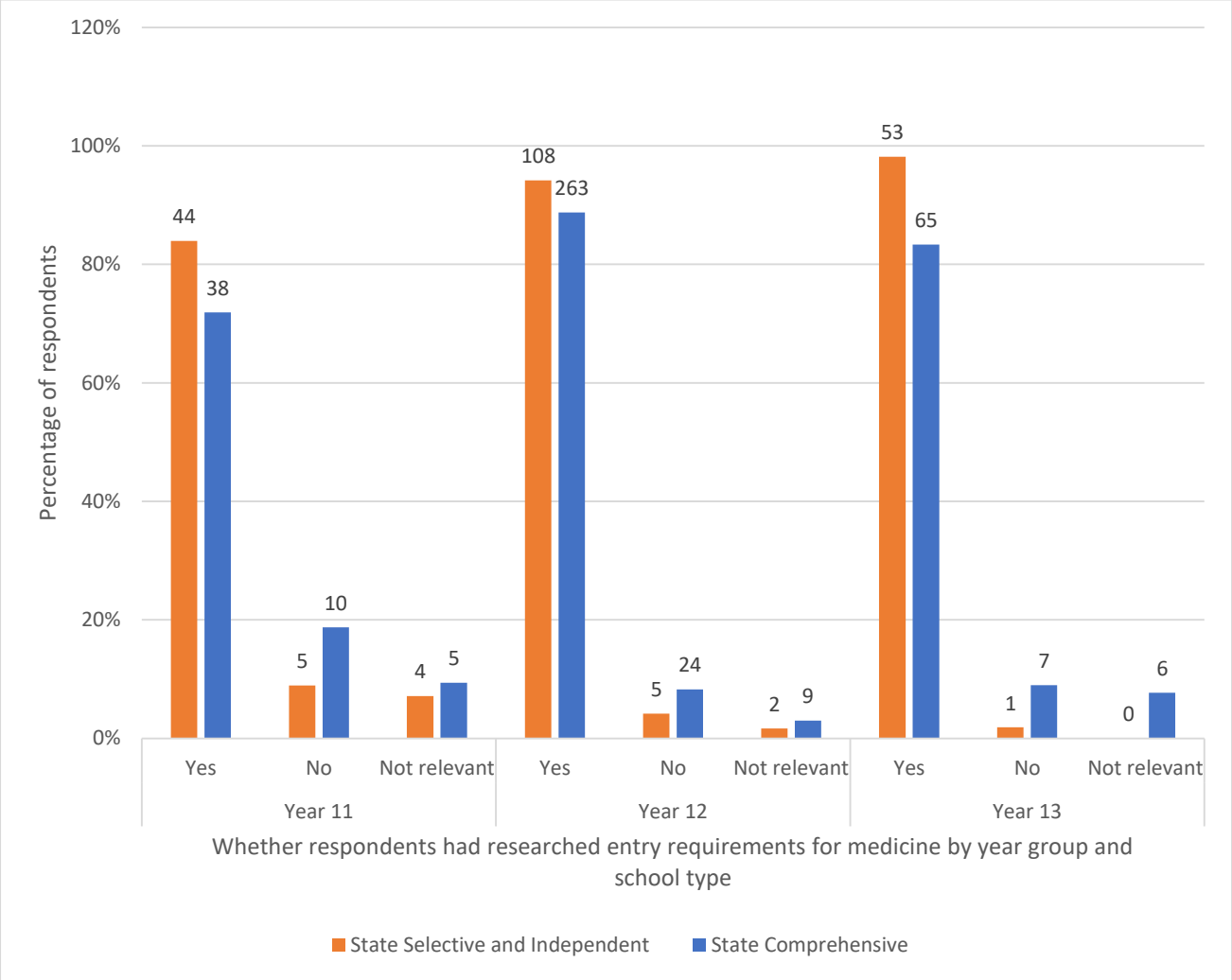


Figure 2.05: Have you researched the entry requirements for medicine?

Bar chart showing the percentage and number of responses within each category from Year 11, 12 and 13 respondents to the question *'Have you researched the entry requirements for medicine?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (Year 11, n = 53; Year 12, n = 296; Year 13, n = 78). Orange bars depict responses from participants from the state selective and independent sectors (Year 11, n = 53; Year 12, n = 115; Year 13, n = 54).

Figure 2.05 shows that, consistently, state selective and independent sector respondents were proportionally more likely to have researched the entry requirements for medicine compared to their state comprehensive sector counterparts. This suggests that students in the state selective and independent sector are more likely to be better equipped for working towards meeting the entry requirements for medicine because they are more likely to know what it entails.

2.3.1.2 Challenges in the application process

Questionnaire participants were also asked what they had found challenging in their research and preparations for post-18 education so far to see whether perceived challenges changed or persisted between year groups and school types. This was framed as a free text question where questionnaire participants were not given pre-selected choices to select from and were instead given an opportunity to write down their own thoughts and responses. Responses were then categorised and similar categories grouped together. There are some interesting comparisons to be made between students at the same stage of the process but in different types of educational establishments, and how challenges appear to change at the different stages/year groups.

Figures 2.06-2.08 below show what Year 11-13 students perceived to be the main challenges in their research and preparation for Higher Education or other post-18 options so far.

Figure 2.06

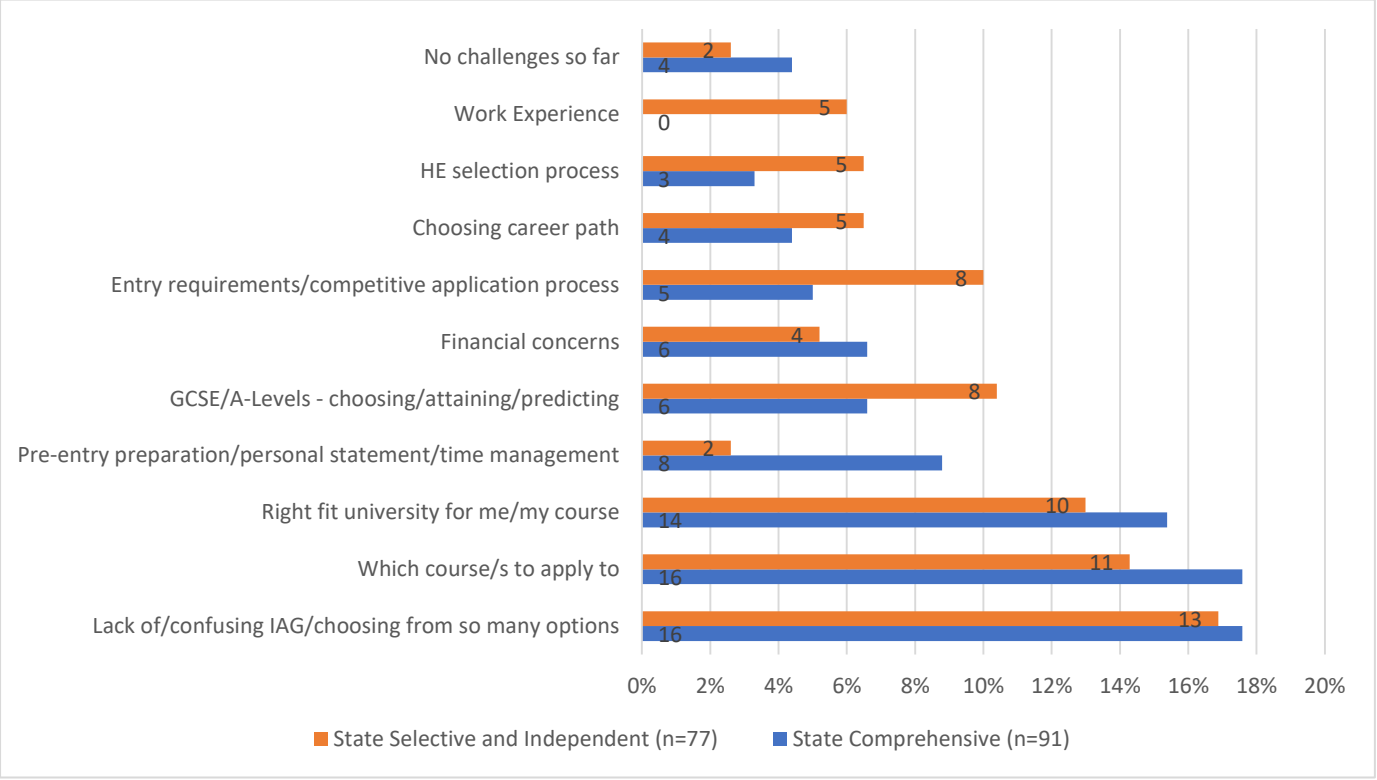


Figure 2.06: What have you found most challenging in your research/preparation for post-18 so far?

Bar chart showing the percentage and number of responses within each category from Year 11 respondents to the question *'What have you found most challenging in your research/preparation for post-18 so far?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 91). Orange bars depict responses from participants from the state selective and independent sectors (n = 77). Where responses made up a fractional margin of the overall results these were grouped together under an "other" category and were only included in the final analysis where helpful to do so.

Figure 2.07

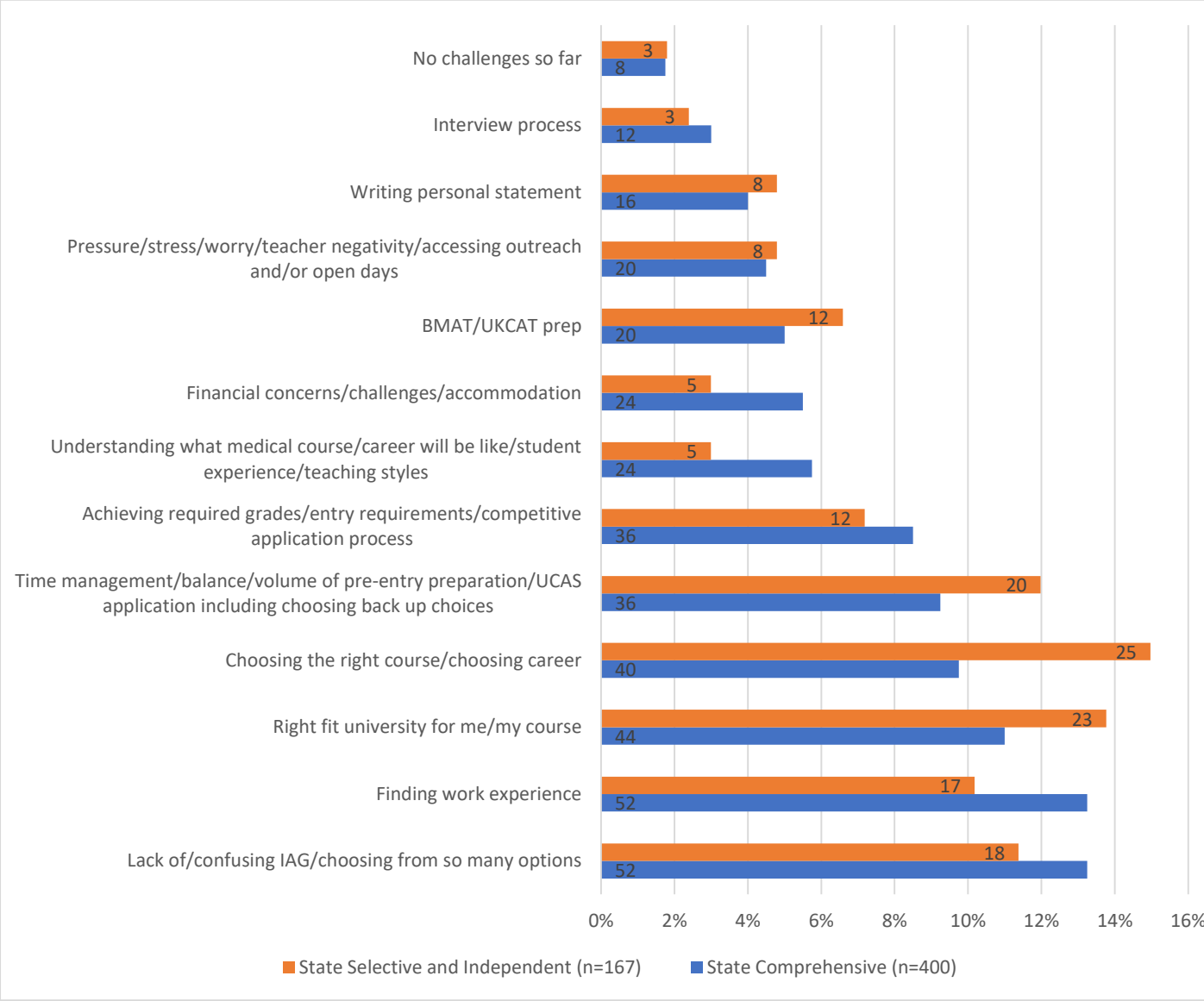


Figure 2.07: What have you found most challenging in your research/preparation for post-18 so far?
Bar chart showing the percentage and number of responses within each category from Year 12 respondents to the question *'What have you found most challenging in your research/preparation for post-18 so far?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 400). Orange bars depict responses from participants from the state selective and independent sectors (n = 167). Where responses made up a fractional margin of the overall results these were grouped together under an "other" category and were only included in the final analysis where helpful to do so.

Figure 2.08

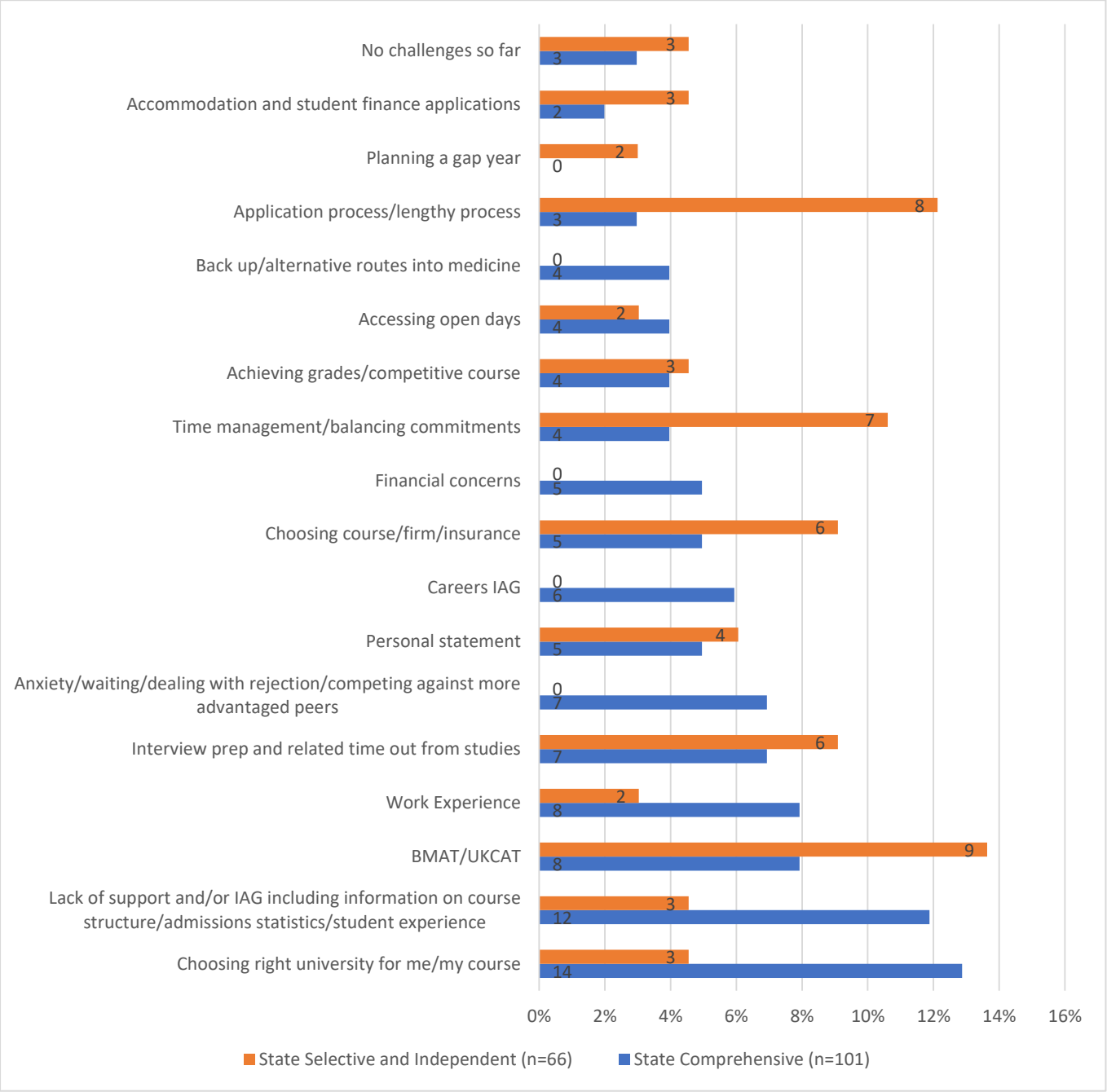


Figure 2.08: What have you found most challenging in your research/preparation for post-18 so far?

Bar chart showing the percentage and number of responses within each category from Year 13 respondents to the question *'What have you found most challenging in your research/preparation for post-18 so far?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 101). Orange bars depict responses from participants from the state selective and independent sectors (n = 66). Where responses made up a fractional margin of the overall results these were grouped together under an "other" category and were only included in the final analysis where helpful to do so.

Naturally, for Year 11 students, this seemed like a big leap in terms of academic stages as they were going through the decision-making process for their post-16 options, but there was generally an awareness of post-16 choices having an impact on post-18 options.

Figure 2.06 shows that, regardless of whether the Year 11 students were at a state comprehensive school or in the state selective or independent sectors, their top three issues were consistent. Students were most concerned that they were overwhelmed by choice and concerned by the lack of IAG to help them navigate these choices within their school or college. This is perhaps connected to their next most prevalent concern (or joint top concern in the case of state comprehensive school students): choosing which course to apply to. The top three is completed by concern regarding which university to choose and how to establish a "right fit" either for themselves or for their course (or both in some instances). This suggests that Year 11 students are currently underserved with regards to IAG, both from the schools and HE sector. Students are aware that they need to start making decisions that may affect their future studies and careers but they are unfamiliar with how to navigate and understand the information that is available. This is particularly important to students that may be considering applying to medicine which has specific subject and other entry criteria that students need to consider in a timely manner. Students do not feel that they are as well prepared in Year 11 as they want to be, which is concerning given the high demands of achieving a place at medical school.

The highlighting of work experience by students from the state selective and independent sectors supports comments made in the focus groups where students from these sectors were beginning to prepare themselves for trying to source a suitable volunteer opportunity and shared their challenges of not being old enough to undertake the work experience that they knew they needed.

"For medicine I think it's... because I think technically, you are not allowed to do work experience until you are 18, which is why I was like, I kept getting told that at the hospital I was at... 17, 18, it's the age here, you need to be, to go into theatre you need to be like 17, I snuck in at 16"

Quote from focus group participant in the independent sector, regarding challenges of accessing work experience in a medical setting when in Year 11 or Year 12.

What independent sector students in the focus groups saw as their main challenges were the age restrictions for many hospital placements and whether they would be able to access these opportunities in a timely manner. Students perceived hospital placements to bring added value and prestige to their medical school application and were concerned that they were ill prepared for accessing these opportunities. One respondent talked of all the additional things that they felt they were required to do to "get ahead" in applying for

medicine whilst another mentioned trying to understand how the process of getting work experience works. Interestingly, this was not something that was mentioned by Year 11 state comprehensive school students. Based on findings in the focus groups and one-to-one interviews, this seems unlikely to be because this group had wider access to work experience opportunities, and more likely reflects a lack of awareness at that time regarding the requirements for work experience and/or the difficulties in accessing work experience.

This is an interesting point to consider further. On the one hand, the state selective and independent school sector respondents seem to have been more aware of the work experience requirements for medicine and had started to research the opportunities and restrictions. On the other hand, there seems to be a feeling that they didn't receive enough information and advice from their school and were unsure of how to access work experience opportunities. In contrast, the data from the comprehensive state sector respondents suggests they were typically less aware of work experience requirements, or certainly the challenges they might face in accessing such opportunities. From a critical realism perspective, this raises a question about timeliness of information. Although an early understanding of the requirements may help preparation, are state selective and independent sector students being made aware of work experience as an additional requirement for medicine too early in the process? Are their school/college in a position to support them with the process in regards to providing IAG on types and sourcing of suitable placements at the same time as informing them about this additional requirement or does support come in at a later stage? Providing this information without immediate follow up support could potentially have led to increased anxiety about accessing work experience and, in turn, led to these students perceiving it as a challenge. However, it could also have meant the respondents had started to undertake independent research into accessing work experience and were more prepared for the challenges that lay ahead. For state comprehensive sector respondents, it appears that because they were yet unaware of the work experience requirement, they may not have seen this as a challenge or cause for concern. Whilst this may be seen as a positive thing in regards to mental wellbeing at this stage, it also means that they may have had less time to prepare for and secure work experience opportunities, and so may miss out on placement opportunities, particularly those that may be perceived as "high calibre" or high in demand, such as those within hospitals and, as indicated by participants in Year 12 and Year 13, experience heightened anxiety at a later stage.

These findings are further evidenced in the responses from participants in both the one-to-one interviews and the focus groups, where they reflected on the timelines in which they received information and the impact they felt it had.

"I'd heard about it [work experience, in Year 11] but I wasn't really sure what exactly they wanted you to do and what you were supposed to get out of it"

Quote from one-to-one interview participant 8, state comprehensive school attendee, regarding information about work experience/requirements related to medicine

"I found it hard to find [work experience] because a lot of the stuff, you have to book a year in advance and you have to have interviews for it, which made it very hard to find and I feel like I started late which means I've missed out on opportunities"

"We just started Year 12….You have like a year and you have to start applying. They should've started telling us sooner, giving us all this information from a younger year. Like let's say….you've already thought about you want to do medicine from when you're in Year 8, you've never had all that information. You're preparing yourself thinking oh yes, this is the only career….Then you get to the stage that you're finding out all this information [Year 12] and you're like thinking I should've [had] more information [earlier]…."

"I've seen how much pressure it is and I don't really have that much time because like the year [year 12] is nearly over"

Quotes from focus group participants in the state comprehensive sector, regarding information about work experience/requirements related to medicine.

Another apparent area of difference between the sectors being compared in figure 2.06 is the level of concern given to pre-entry preparation (not relating to work experience), time management and personal statements.

For some students their challenge may concern time management in relation to developing a strong personal statement. Some respondents from the state comprehensive sector cited having to find time for extra-curricular activities to make their personal statement and application stand out. An assumed reality, or using a critical realist lens, in the empirical domain students from historically under-represented backgrounds are more likely to attend schools in the state comprehensive sector and are more likely to be in family structures where they have additional responsibilities outside of school such as part-time work to support themselves or their family and caring duties for younger siblings or older family members (Considine and Zappala, 2002). As such, they may be more likely to be concerned about being able to manage their time to build in and balance extracurricular activities to benefit their application.

"Managing my studies and my extra circular [curricular] activities, when I will have to apply for university and still keep my job"

"Finding time outside of full time education to attend open days and take on extra-curricular activities alongside my family and working commitments"

Quotes from questionnaire participants in the state comprehensive sector, regarding time management concerns.

This might also link to the slightly higher rated concern amongst state comprehensive respondents in regards to financial factors. If students are concerned that they will have to reduce their part-time working commitments in order to fulfil some of the extra-curricular aspects of a strong UCAS application, then this may exacerbate their concerns around the affordability of Higher Education. Some respondents from the state comprehensive sector also cited finances in relation to pre-entry preparation or activities as a challenge, with the perception that paid-for opportunities would put them at an advantage and would be more likely to advance their UCAS application experience.

"Many of the opportunities involve paying a significant amount of money"

"There are a lot of sacrifices that I might have to take in order to do the course that I have chosen to study."

Quotes from respondents in Year 11 state comprehensive schools to the question: 'What have you found most challenging in your research/preparation for post-18 so far?' in the questionnaire.

In contrast, state selective and independent school students seemed to be more concerned with balancing their extra-curricular activities with their studies and extra academic work.

"Coordinating the applications process with the admissions tests, EPQ, school work etc."

"Balancing the BMAT/UKCAT and interviews with School"

"Managing extra-curricular and school work"

Quotes from questionnaire participants in the state selective and independent sectors, regarding time management concerns.

There are again interesting comparisons to be made between the responses from Year 12 students in the state comprehensive sector and the state selective and independent sectors. The top five challenges for both sets of respondents were the same but the order in which they appear in that top five, differs.

It is notable that the top concern for state comprehensive respondents in Year 12 is still around the information, advice, and guidance that they receive in their schools or colleges. This suggests that this might be an area that hasn't improved from Year 11 and students are still struggling with how to narrow down their options or seek accurate and/or timely information. Their other top concern, with 13% of responses, is regarding finding work experience to support their applications to medical school. For many, they were still seeking work experience, particularly in the hospital environment, and were finding this to be a

difficult and often impenetrable process. This was also indicated in the focus groups with students from the state comprehensive sector as highlighted in the quotes below.

"It's quite often who you know rather than what you know in work experience which….is good for people that know people but for people that don't it's a bit unfair I think, because we're sort of stuck because we can't get anything unless we have the right connections and quite a lot of us don't"

"You just email as many people as you can [to ask for work experience] and you hope for the best"

"It's about the fact that universities expect us to have this [work experience] when we find it difficult [to get]."

"I think work experience is a burden at this age. Employers don't want us."

Quotes from focus group participants in the state comprehensive sector, regarding accessing work experience related to medicine.

Finding work experience was also a top 5 concern for state selective and independent sector respondents, suggesting that it may still be a concern for students from those sectors if they do not have connections to support them. Experiences shared in the focus groups reflected varying degrees of challenges in accessing work experience, with some participants from the state selective and independent sector, who had connections to support their search, tending to find it an easier process to navigate.

"To get into theatre [in hospitals] you need to be, like, 17. I snuck in at 16 somehow. The guy said, 'you just sneak in'"

"I am quite lucky because I know doctors who do me a favour and let me in if I shadow them and stuff but if you don't….have that available to you, I think it's quite hard to get the work experience that would facilitate a decision around medicine….I think that's a barrier towards a medical education"

"The school offered a few, several, work experience opportunities but then family, friends, people I contacted through the network of people that I know and that my parents know"
"Yes, it mainly is through, like, family and connections"

"Mine was probably through my dad and his friends but it doesn't feel rewarding when your parents organise [work experience]"

Quotes from focus group participants in the state selective and independent sector, regarding accessing work experience related to medicine.

Overall, it appears that for Year 12 students from the state comprehensive sector the main concerns are around access to resources, whereas the greatest challenges for Year 12 respondents from the state selective and independent sectors centre on issues around finding the right fit academically and the university environment.

Time management and pre-entry preparation had become far more pertinent as issues for the state selective and independent sector respondents compared to respondents from the same sectors in Year 11 (figure 2.06) and was now in their top three concerns. It was also a top five issue for state comprehensive sector respondents but came below access to resources and opportunities. For respondents from the state selective and independent sectors, their primary concerns regarding time management were balancing their extra-curricular activities such as sports and music with their various work experience opportunities, attending open days and preparation sessions for entrance exams. The concerns were about managing all of their opportunities rather than finding time to still seek opportunities out.

"Finding the time to do it with all my academic and music commitments"

"Preparing for aptitude tests and balancing it with external reading around topics that I am interested in and with the pressure of school work and extracurricular activities would be the hardest. It is essentially time management"

"Managing 4 A-Levels on top of work, rowing and composing music"

Quotes from respondents in Year 12 state selective and independent sector schools to the question: 'What have you found most challenging in your research/preparation for post-18 so far?' in the questionnaire.

For respondents in the state comprehensive sector, their concerns around time management seemed to focus on having to balance the time they spent on trying to access work experience opportunities alongside their personal commitments outside of school and maintaining high academic performance. There was also a lot of concern raised about trying to establish suitable back up options in the event of failure to achieve an offer to medical school.

"….having to balance my time and staying engaged as I have to travel far to college and wake up early and sometimes come home late"

"The biggest challenge in my preparation for after year 13 is finding time to do extracurricular activities to help enhance my personal statement"

"Trying to research about the 5th option [to put down on UCAS application form] – so what subject to do. Also exploring backup options for example what to do in a gap year"

Quotes from respondents in Year 12 state comprehensive sector schools to the question: 'What have you found most challenging in your research/preparation for post-18 so far?' in the questionnaire.

This difference in concerns about time management and priorities may be partly reflected in the findings from the Year 11 responses to this question (figure 2.06) where respondents from the state selective and independent sectors seemed more aware of the work experience requirements than respondents from the state comprehensive sector and had perhaps already overcome some of the challenges in researching and sourcing opportunities

that state comprehensive respondents were struggling with in Year 12. Discussions during the focus groups and interviews also suggest that students from the state selective and independent sectors, particularly the independent sector, were more likely to have access and exposure to work experience opportunities within hospital settings either through their school or via personal links.

"I can say at the very start of this one of the most difficult things was getting a hospital placement. I feel like most people that had managed to do it that I'd spoken to was through family friends. People at medical school that have said that they did placement a lot of the time just via family friends"

Quote from one-to-one interview participant 2, state selective school attendee, regarding accessing work experience related to medicine.

"I did a seven week stint at a [hospital] research lab in America last year and I am going back this year, for seven weeks again, and we are hopefully publishing something at the end of this year. So that whole like process of me actually understanding the mechanics behind frontline medicine, I found really really cool"

"It was during the summer holidays last year, and it was after GCSEs, I did a placement in a hospital, shadowing a GP and doing some voluntary work"

Quotes from focus group participants in the state selective and independent sector, regarding accessing work experience related to medicine.

Despite communications to the contrary from medical schools, students still perceive hospital placements/shadowing as an essential component of a successful application to medical school. For students without networks or contacts that make this a readily available option to them, they perceive themselves at a significant disadvantage and often tend to make assumptions about the advantage being held by those students who do have such contacts. Although this view sits in the empirical domain of critical realism, there are instances where this is reinforced in the actual domain. From my own experience of sitting in on applicant interviews for medicine, those students who had experience in hospitals, of observing doctors etc., were able to more confidently and holistically answer the questions the panel were putting to them, and their responses tended to receive the most feedback. This, in turn, impacts which applicants receive offers. If we are to truly hold all types of healthcare work experience in parity for medical school applications, consideration needs to be given as to how this aspect is assessed at interviews to ensure inclusivity and equitable currency for all types of work experience in a way that will instil confidence and trust in applicants that there isn't a hierarchy in terms of work experience opportunities.

Another area where there appears to be a notable disparity between responses is in relation to financial concerns and university accommodation. Six percent (n=22) of Year 12 respondents from the state comprehensive sector raised concerns around the cost of living and being able to afford the everyday costs of university, alongside concerns about costs of

accommodation and difficulties settling in to accommodation. These concerns are particularly exacerbated for a medical degree which is longer in duration (typically 5-6 years) than most traditional programmes (typically 3 years) and thus has additional financial implications. Respondents found it challenging to find information on financial support that may be offered by universities themselves and their entitlement criteria. They also raised concerns about finding an affordable city to study in and having access/time to secure part-time work with a very full academic timetable, so as to be able to financially support themselves.

"I have had difficulty in finding out about financial help offered and who is eligible."

"The financial aspect of university, as I will struggle to support myself if I don't have time to find a part-time job."

"Planning for the financial restraints of my background"

Quotes from respondents in Year 12 state comprehensive schools to the question: 'What have you found most challenging in your research/preparation for post-18 so far?' in the questionnaire.

Only 3% (n=5) of respondents from the state selective and independent sectors raised similar concerns around finance and, markedly, they were all from the state selective rather than independent sector. This is a useful reminder that, whilst students in the state selective sector are more likely to have access to more academic resources than their peers in the state comprehensive sector, it shouldn't be automatically assumed that they also have greater access to financial resources.

Figure 2.07 indicates a difference between the state comprehensive sector and state selective and independent sectors in regards to understanding what a medical degree and profession will entail with 6% (n=23) of state comprehensive respondents highlighting this as a concern compared to 3% (n=5) of state selective and independent sector respondents. This suggests that there may be more work to do with the state comprehensive sector to support understanding of, for example, the structure of a medical degree and the teaching styles used, together with information on post-graduation options and processes.

Year 12 is the first point at which concerns about preparation for medical school entrance exams, the BMAT and UCAT (called UKCAT at the time when the questionnaire was distributed but since had a change of name) were raised. One or both of these entrance exams were cited by 5% (n=20) of state comprehensive respondents and 7% (n=11) of state selective and independent sector respondents as a major challenge. Respondents from all sectors suggested that preparation for the entrance exams was a challenge, though only respondents from the state comprehensive sector mentioned struggling with knowing how to

study for the entrance exams or what they should study in preparation. For state selective and independent sector respondents the challenge appears to be in the concept of having to prepare for them, in much the same way as any other exam they prepare for, however state comprehensive sector respondents talked of being scared of the exams and not knowing what they should do. This suggests that students in the state comprehensive sector may not receive IAG and support in relation to the entrance exams in the same way as students in the state selective and independent sectors do.

"Struggling on how to prepare the BMAT for my chosen university."

"I'm just really scared about admissions tests..."

Quotes from respondents in Year 12 state comprehensive schools to the question: 'What have you found most challenging in your research/preparation for post-18 so far?' in the questionnaire.

This is further corroborated by discussions in the focus groups and one-to-one interviews where participants from the state comprehensive sector discussed the lack of support or information they received from their schools or colleges in regards to entrance exams for medicine.

"I did feel a lot that I was on my own, also especially for the BMAT it was very much like, you know, you do the past papers if you want. Like I tried to make meetings with teachers to go through the papers and things, but it was… I did feel very alone"

Quote from one-to-one interview participant 7, state comprehensive school attendee, regarding support with entrance exams.

"Because there was nobody else [applying for medicine] I remember, like, going and saying oh, I think you as a school need to register to be a BMAT centre or something like that….I was the only one in my year and nobody the year before had applied for medicine [therefore], they didn't necessarily have any information about what to do for the exams as such"

Quote from one-to-one interview participant 9, state comprehensive school attendee, regarding support with entrance exams.

"BMAT [is] much harder. There's no support in school, because they don't really encourage you to apply to BMAT universities here. Because they just can't offer the support"

Quote from focus group participant from the state comprehensive sector, regarding support with entrance exams.

This is an aspect where student perceptions in the empirical domain can have a large impact on outcomes in the actual domain. If students are feeling let down by their schools in terms of getting support for entrance exams and starting to feel quite isolated in the process, this is highly likely to affect their approach and performance in the entrance exams because it will affect their confidence and state of mind. A student's confidence and feelings of advantage/disadvantage can have an impact on their overall focus and ability to perform on the day. This can also manifest as feelings of stress or pressure.

Year 12 is the first point at which respondents started to mention pressure as a challenge that they faced. Five percent of respondents from both the state comprehensive sector (n=18) and the state selective and independent sectors (n=8) mentioned some sort of pressure, stress or worry as their major challenge. Responses tended to mention the pressures of trying to manage a number of additional things in relation to their studies/commitments in order to submit a successful application to read medicine. This is perhaps also reflected in 9% (n=34) of state comprehensive and 7% (n=12) of state selective and independent sector respondents raising concern about meeting the academic requirements of their chosen course and the competitive nature of the application process.

Respondents also talked about the stress of trying to access open days, whether due to clashes between open days, not being allowed to attend by school, or the time taken away from studies for weekday open days. For respondents from the state comprehensive sector, they also mentioned being unable to access, or being rejected from, university outreach programmes as a source of additional stress, as they felt it was a resource or opportunity that they were being deprived of and this increased the pressure and isolation that they felt in trying to build up a strong profile for their UCAS applications. This is something that is substantiated by the focus groups where access to outreach programmes was voiced as a major frustration for participants and a sense of injustice was felt that some students ended up attending several programmes while many students who were equally disadvantaged and in need of support, were unable to access any programmes at all.

"It's like my friends, some of them just have too many opportunities that they have to turn down some and then there's like me who needs the opportunities they're getting [but miss out], but since they've got too many… you know. It's just annoying sometimes."

"I apply to all these things, the same as my friends do but just because their parents might earn just a bit below my parents, they get more opportunities than me. Okay, I might have more money, but there's no place for me to go to pay and get work experience."

"I think the eligibility criteria is very, very specific and you find a lot of students where the government would say they're well enough to do things, but those students themselves can't find a pathway to get into what they want to do, even though they're not as disadvantaged [as those on outreach programmes], but they still need that help which they don't get."

Quotes from focus group participants from the state comprehensive sector, regarding access to university-led outreach programmes.

Another thing that was mentioned by state comprehensive respondents to the questionnaire, in relation to pressure and stress was the negativity students received from their teachers about applying to study medicine. This also arose in the focus groups and one-to-one interviews. Students suggested that, in emphasising the competitive nature of applying to medicine, their teachers often gave the impression that they should not apply to medicine

because they wouldn't get in, or fit in if they were successful, and, if they were going to apply, that the school would be unable to provide significant support in preparing their application.

"The criticism you receive for wanting to go into medicine due to how competitive it is"

"Teachers trying to put you off medicine because they think it isn't for the likes of you or you aren't clever enough"

Quotes from respondents in Year 12 state comprehensive schools to the question: 'What have you found most challenging in your research/preparation for post-18 so far?' in the questionnaire.

"There was no-one there that I could speak to or have that support from….my school didn't actively try to help as much because it was only one person, one individual, it wasn't like a group of five or six. So, I found that, kind of, hard."

"I felt like with my school we didn't really have that many applicants applying to medicine so a lot of everything was more for us to do by ourselves….the entrance exams like the UKCAT, the BMAT, I struggled finding like the correct information, not even the correct information just enough information about what it was and how to go about it. And then, also with I think, personal statement wise what to actually put in the personal statement, because the advice that I was given was just to read as many different personal statements as possible…"

"They [the school] don't really do any BMAT support and even with interviews [they didn't help much]. A biology teacher did offer to help, so they did do a mock interview but I wouldn't say it was that helpful, to be honest, it didn't even focus on medicine."

"Teachers kept telling me not to apply for medicine and that it was too hard for me, I won't fit in etc…..they said they wouldn't be able to help me with the application if I applied."

"You don't really want to hear teachers putting you off of doing courses. I mean that just makes you depressed really."

Reflections from one-to-one interview and focus group participants from the state comprehensive and state selective sectors on school/teacher support when applying for medicine

These are also themes that came up in the focus group with teachers and careers advisors, which are discussed in section 2.3.8. It is useful to reflect on their perspectives on these issues when considering why schools may not offer much support or seem to discourage their students from applying. Using a critical realism framework to question why teachers behave the way they do and whether teachers from different types of schools have different motivations in their encouragement/discouragement of students in applying for medical school is very important. We cannot assume that all teachers or all school types have the same motivations which is why I sought to explore this. My research found that there are a range of motivations that teachers must balance in supporting or discouraging students to apply for medicine and there is variability in what those motivations are based on the type of school that a student attends. These are further discussed in section 2.3.8.

Year 13 respondents to the questionnaire were also asked the same question about the greatest challenges that they had faced in their preparation for post-18 education and their responses are shown in figure 2.08.

The responses in figure 2.08 show that, compared to year 11 and Year 12 responses in figures 2.06 and 2.07 respectively, the greatest contrasts in responses to this question between the state comprehensive sector and the state selective and independent sectors came from Year 13 respondents. Taking into consideration that this questionnaire was (purposefully) sent out in the Spring term when a majority of Year 13 students would have already submitted their UCAS applications and had some time to recover from and reflect on the process, the responses are likely more reflective of the whole experience than the responses from Year 11 and Year 12 respondents. However, it is also worth bearing in mind that Year 13 respondents may still have been waiting to hear outcomes from universities on whether they would be invited to interview and/or whether they had received an offer, which may have influenced their responses to this question.

IAG still came across as the dominating challenge for respondents from the state comprehensive sector, qualifying findings from the focus groups. A quarter of all responses (n=25) from Year 13 students in the state comprehensive sector cited lack of support and IAG – across the whole process of applying but also in relation to how medical schools are structured and what studying at medical school is like – and having an appropriate amount of information to inform their choice of "right fit" university as the top two challenges that they faced. In comparison only ten percent (n=6) of state selective and independent sector respondents displayed the same concern for these challenges. This suggests that students in the state comprehensive sector are more likely to struggle to access the information and advice they need to make an informed and timely decision about applying to medical school. This was also reinforced in the teacher focus group and further discussed in section 2.3.8. The fact that a significant number of respondents in Year 13, at the point where they have submitted their UCAS applications, were finding it difficult to understand the different course structures at medical schools suggests that more work needs to be done to clarify and disseminate this information.

This is further evidenced in the responses from participants in the one-to-one interviews, where there were a number of discussions and points raised about different teaching styles. Students were not always clear on the merits of different medical schools' approaches to teaching and, in some cases, they felt that there was variability in teaching styles within the

same medical degree programme which were not well explained. As a result, students were not always confident that they understood the differences in teaching styles or which would suit them, as an individual learner, the best.

"The course [structure] is important, but before you actually go it's…difficult to know how you're going to learn. So a big deal was made out of different universities being more PBL and more lecture-based and sort of like the old-school Oxford, the old-school style of teaching and the newer PBL…style of teaching. And to be honest I didn't really know how to deal with that information. Just because I didn't really... It's kind of a new experiences, it's difficult to tell what's going to suit you."

Quote from one-to-one interview participant 2, state selective school attendee, regarding understanding/choosing between different medical school course structures.

"It is difficult making that decision [about course structure] without actually having any experience of what that means….I am not sure I have made the right decision to be honest but what can I do now?"

Quote from one-to-one interview participant 7, state comprehensive school attendee, regarding understanding/choosing between different medical school course structures.

"Universities, they say, oh, you need to search which teaching styles suit you but some of the teaching styles, we haven't really experienced much before."

Quote from one-to-one interview participant 1, state comprehensive school attendee, regarding understanding/choosing between different medical school course structures.

This is important to reflect on from a critical realist perspective because it indicates that the reality enforced by medical schools and assumed by them to be understood by their students is experienced differently from the way that was intended by the medical school. It is important to a student's success that they understand the purpose and value of the different aspects of the teaching that they encounter and if it is instead causing confusion or apathy, this is something medical schools need to better understand.

In contrast, the top two biggest concerns for students from the state selective and independent sectors were navigating the BMAT/UKCAT entrance examinations (14%, n=9) and the lengthy application process for medicine (12%, n=8). Respondents raised issues such as ensuring that they fulfilled all criteria for all the different types of medical programmes and managing clashing priorities. Concerns do not appear to have been about a lack of understanding or support in preparing for the process, rather they were about negotiating different aspects concurrently.

"Different universities having different, very specific requirements – challenging to make sure your application meets all of them"

"BMAT clashed with EPQ"

Quotes from respondents in Year 13 state comprehensive schools to the question: 'What have you found most challenging in your research/preparation for post-18 so far?' in the questionnaire.

Once again a lower proportion of state comprehensive respondents (8%, n=8) cited the BMAT/UKCAT entrance exams as their most challenging aspects. Although this is an area that was spoken about significantly in the focus groups and interviews, it appears that, comparatively speaking, entrance exams are less of an issue for state comprehensive students than some of the other aspects of the application process. It could also be possible that students have attempted to mitigate some of the challenges of preparing for entrance exams by deciding to enter for only one of the two entrance exams and, as a result, focusing on applying to the subset of medical schools that use that entrance exam.

What is perhaps most striking in figure 2.08 is that there are four areas that came up as challenges for respondents from the state comprehensive sector that were not raised at all by respondents from the state selective and independent sectors. Dealing with rejection, anxiety about waiting for university responses and competing with more privileged peers were cited as a big challenge by seven percent (n=7) of state comprehensive sector students. Students suggested a sense of hopelessness in competing in a system not set up to support them to succeed. Whilst the numbers are too small to generalise, it is interesting to note that these points were not raised by respondents from the state selective and independent sectors at all in the questionnaire.

> *"The commercialisation of preparing for medicine I believe has driven a further divide between state educated and private school students who can afford these courses."*

Quote from a respondent in a Year 12 state comprehensive school to the question: 'What have you found most challenging in your research/preparation for post-18 so far?' in the questionnaire.

Whether the suggestion being made in the quote above is accurate is relatively unimportant here. The *perception* that students from the independent sector get an advantage in their preparation for and outcomes of medical school applications is having an impact on the wellbeing of students from the state comprehensive sector. It is also striking that none of these concerns have been raised by respondents from the state selective and independent sectors. It is possible that students in the state selective and independent sectors are better prepared for the mental and emotional aspects of the process but it is also possible that it is perceived as a lesser challenge because they have greater confidence that they have been well prepared and better prepared than their peers from the state comprehensive sector. This is another example of where the perceived reality can have an influence on the actual domain of critical realism because a student's perceptions can impact their confidence and their performance in various aspects of the application process for medical school.

Another area which was not mentioned by the state selective and independent sector respondents but was cited as a challenge by six percent (n=6) of the state comprehensive sector students was IAG in relation to careers. This was mentioned more generally in terms of choosing a vocation but also specifically in relation to medicine and understanding the different careers paths and trajectories within medicine. This again links back to the prevalent concern around lack of support and IAG received that was felt by state comprehensive sector respondents. However, what is particularly concerning about the lack of IAG in relation to medical careers is that it may also have an impact on students' performance in interview. If students are asked about why they want to study medicine or what they want to do in the future, students from the state comprehensive sector may be less likely to elaborate or show understanding of the next stages of the process and profession if they have not been supported in getting and understanding this information. For interview panels, this may come across as lack of thought or commitment to the profession rather than a lack of information. From a bigger picture perspective, in much the same way lack of understanding around teaching styles may impact how a student progresses on their course, there is also a concern that a lack of understanding around careers within medicine may lead to students not really understanding what they are signing up for or being unprepared for how long the career training pathway is.

Financial concerns were raised as a challenge by five percent (n=5) of respondents from the state comprehensive sector but not at all by the state selective and independent sectors. This could just be down to chance in terms of the students that participated, but there are also other possibilities that should be considered. This could also be because students from the state selective and independent sectors had received more detailed IAG on the financial aspects of Higher Education but it could also be because finances and affordability are simply less of a concern for students from those sectors.

Interestingly, four percent (n=4) of state comprehensive respondents and zero percent of state selective and independent sector respondents raised researching back up options or alternative routes into medicine (if the mainstream route was unsuccessful) as their main challenge. It is surprising to see this mentioned as something some respondents from the state comprehensive sector described as having found to be 'most challenging,' yet it appears that no students from the state selective or independent sectors were seriously challenged by the thought of failure to get a place at medical school.

The final area of notable contrast in figure 2.08 is in the increasing gap in the perceived challenge of balancing commitments and time management. Eleven percent (n=7) of

respondents from the state selective and independent sector mentioned time and commitment management compared to just four percent (n=4) of the state comprehensive sector respondents. The gap between the two sectors has further increased compared to responses from Year 12 students in figure 2.07. Despite being a small sample size, this is an interesting observation as the popular assumption would be that students from state comprehensive schools would find time management and balancing commitments more challenging than students from the state selective and independent sector but both figure 2.07 and figure 2.08 indicate this to be a more prevalent concern for respondents from the state selective and independent sector. This could be for a number of reasons such as students from the state selective and independent sector have access to greater extra-curricular and/or work experience opportunities that they now have to additionally balance. It could also be because state comprehensive sector students are more adept at balancing a number of priorities and learning more independently and have, therefore, been more exposed to time management skills. However, questionnaire responses do not provide enough insight to assess this accurately and it is an area of work that future studies may wish to further investigate.

2.3.1.3 Support with the application process

Respondents from Year 13 were asked an additional follow-up question to further understanding of what resources and support students have found most useful to assist in their decision-making. The question "what research and/or preparation did you find most helpful to choosing a university and/or course?" was asked only to Year 13 students so that, having been through the whole process of having submitted their UCAS application, they would be able to reflect on what had been most helpful and useful across the whole process and, therefore, potentially the most effective. Figure 2.09 shows which sources of information and support Year 13 respondents found most helpful when choosing a university and/or Higher Education course.

Overwhelmingly, Open Days and other visits to universities were deemed as the most valuable activity in making decisions about which university to attend for both the state comprehensive and the state selective and independent sectors. Being able to experience a university campus and speak to lecturers and students was a valuable opportunity that respondents appreciated. However, as figures 2.07 and 2.08 indicated, accessing open days was also a challenge for some students, either due to the financial aspects of attending and/or having the time off school/other commitments to be able to attend. This could present its own challenges if the activity that students found most valuable to their decision making is also the one that is most restricted to them and may be contributing to the

challenges of widening access to medical education. Students clearly find this activity highly valuable to their decision-making and so medical schools may want to look at how to make such opportunities more accessible and open to ensure everyone is able to engage with the experience.

The next two most useful resources for decision-making were university websites and other internet sources such as the Student Room website, other forum platforms and YouTube. Students appear to highly value opinions from current students or other students who have been through the process of applying to medical school. However, this information is usually on websites and platforms not linked directly to the medical schools themselves and therefore the information may not always be entirely accurate or up-to-date. The reliance on these alternative sources of information may come from negative experiences with university websites. Respondents to both the questionnaire and in focus groups discussed how difficult they found navigating university websites and research by Alexander et al (2017) has also found that medical school websites do not positively promote the benefits to them/the medical workforce of efforts to widen access to medical education and so may act as a deterrent rather than encouraging applications from a more diverse applicant pool. From a critical realist perspective, it would be valuable to establish whether this paucity of information is intentional from medical schools, and if so, their motivations behind this, or whether they do not recognise the barriers that their websites are creating for students.

Figure 2.09

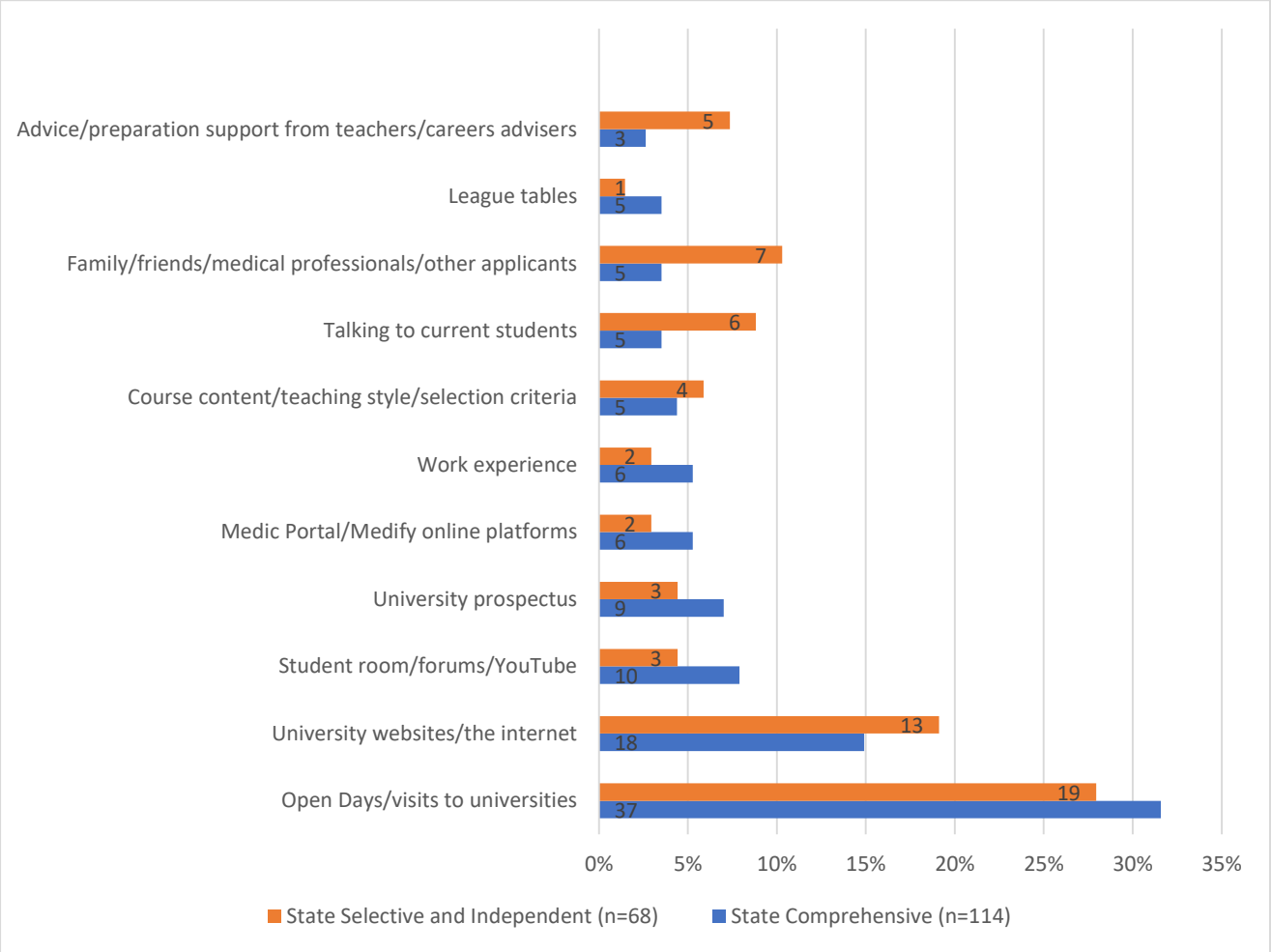


Figure 2.09: What research and/or preparation did you find most helpful to choosing a university and/or course?

Bar chart showing the percentage and number of responses within each category from Year 13 respondents to the question *'What research and/or preparation did you find most helpful to choosing a university and/or course?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 114). Orange bars depict responses from participants from the state selective and independent sectors (n = 68). Where responses made up a fractional margin of the overall results these were grouped together under an "other" category and were only included in the final analysis where helpful to do so.

Figure 2.09 indicates that there is a tendency for respondents from the state selective and independent sector (19%) to use university websites and the internet more generally as their most useful resource whilst state comprehensive sector respondents (8%) cited websites such as the Student Room and YouTube as most useful. This potentially links back to earlier observations around difficulty in accessing good IAG for students from the state comprehensive sector, which was reinforced in the focus groups and one-to-one interviews. Figure 2.09 also indicates a greater proportion of respondents from the state selective and independent sector found information on-course content and structure to be the most valuable source of information in their decision making. This suggests that students from the state selective and independent sector, perhaps under the guidance of their school advisors,

have a greater tendency to use more official sources of information and may have been better supported in navigating complex medical school websites. In comparison, students from the state comprehensive sector may have a higher tendency to rely on second hand sources of information that are easier to self-navigate. This is evidenced in some of the responses to questions in figures 2.07-2.08 and in the one-to-one interviews where respondents highlighted the challenges they faced in accessing and understanding medical school course structures as briefly touched upon earlier in this section. This information is usually available on medical school websites but students may find it difficult to find this information very easily and so look to alternative, less reliable sources. Reflections on accessing resources and information were also made in the one-to-one interviews and focus groups.

"Some universities' websites were easier than others. Like Imperial's is really good. It was straightforward….Cambridge was pretty difficult."
Quote from one-to-one interview participant 11, independent school attendee, regarding medical school websites.

"*Yes, I think our school is a good one…they like want their students to do well, so they like find stuff for you to do or like tell you about it. And I think we're kind of spoon-fed a little bit in the way that they give us quite a lot of resources for us to sort of play with."*

"Our school gets people in from other universities; like they really do try and make sure that we have a good understanding of what's happening, so they bring people in, [who] tell us like what's happening..."

"*I think they just generally give us a lot of resources, like at state schools they probably get as much information as us; they're not given as many resources as us; like they really push us to... like encourage us to do things to help us."*
Quotes from focus group participants from the independent sector, regarding school support with accessing information on applying to medicine.

"I wish they'd started talking about university earlier…They should've started telling us sooner, giving us all this information from a younger year. Like let's say someone like me or you've already thought about you want to do medicine from when you're in Year 8, you've never had all that information. You're preparing yourself thinking oh yes, this is the only career but get no help from school until really late."
Quotes from focus group participants from the state comprehensive sector, regarding school support with accessing information on applying to medicine.

In a similar vein, two medicine specific support websites, Medify and Medic Portal, were specifically named by 5% of state comprehensive and 3% of state selective and independent sector respondents as most helpful in their preparations. Both websites require students to sign up to access materials to support them with the application process for medical school. Limited content is free, with students required to pay for access to more in depth content. Although, cited slightly more by state comprehensive sector respondents, it would be interesting to know whether the breakdown of students that were accessing just free content

on these websites, compared to the paid-for content, reflects similar proportions across the two sectors.

Respondents from the state selective and independent sectors seemed to be more likely to find support from teachers, family and friends most helpful, perhaps suggesting that they have better access to the most relevant social networks. State comprehensive students are also more likely to attend schools with few applicants for medicine, limited school resources dedicated to supporting these students, and few peers they can share the process and experience with. This supposition is substantiated by findings from the one-to-one interviews in particular where students from the state comprehensive sector discussed the challenges of accessing support networks as single/small cohort candidates for medicine at their school.

"I often would've liked someone to talk to about [applying to medicine]… who is going through a similar process, so I would have someone to compare what's going on, you know, talk to them about their personal statements, what universities they're choosing, how were they preparing for the interview, because a lot of it was student researching just of what I could find online, because it wasn't even as if my teachers particularly had lots of knowledge on it. But yes, it would've been nice, I think, just another student or knowing other students that were going through the same thing as that would've helped."

Quote from one-to-one interview participant 9, state comprehensive school attendee, regarding support networks for applying to medicine.

"I guess if both my teachers and if other students were doing it [applying for medicine], had more of an idea about medicine that would've helped. Or even someone to talk to about your application or if you have a particular question you can go back to them."

Quote from one-to-one interview participant 8, state comprehensive school attendee, regarding support networks for applying to medicine.

We can interrogate this further by looking at responses in the questionnaire to the question *"What support have you had with your research?"* This question was asked to Year 11, Year 12, and Year 13 respondents to identify how respondents were accessing support measures at each stage of the preparation and application process. Figure 2.10-2.12 shows support measures accessed by Year 11-Year 13 respondents.

Figure 2.10

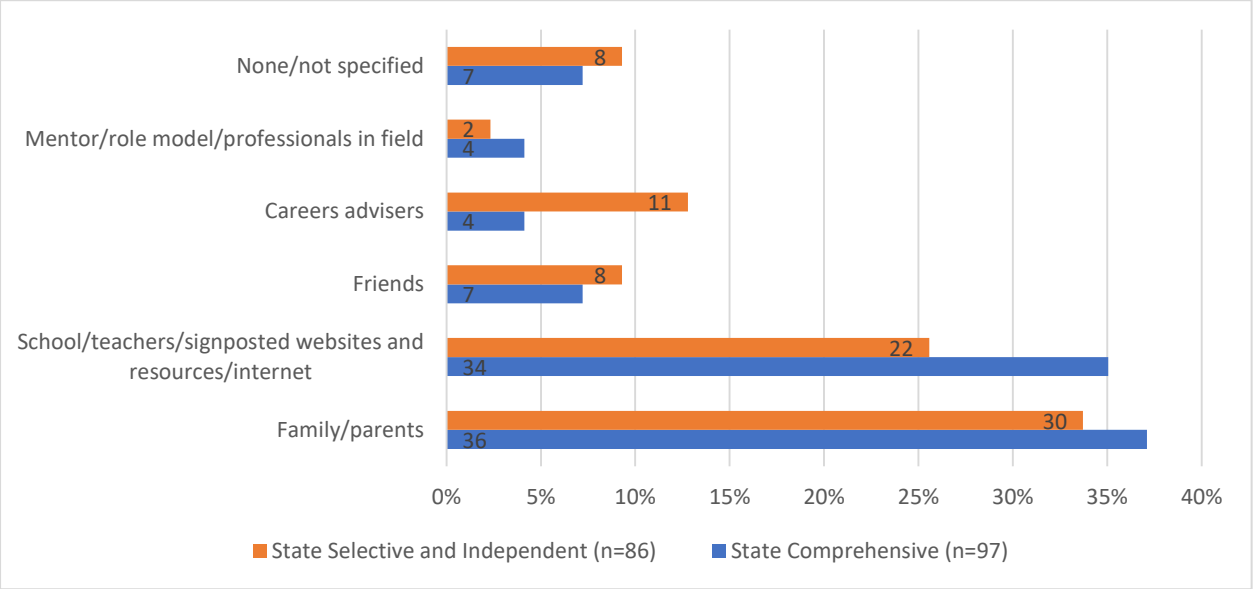


Figure 2.10: What support have you had with your research?

Bar chart showing the percentage and number of responses within each category from Year 11 respondents to the question *'What support have you had with your research?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 97). Orange bars depict responses from participants from the state selective and independent sectors (n = 86). Where responses made up a fractional margin of the overall results these were grouped together under an "other" category and were only included in the final analysis where helpful to do so.

Figure 2.11

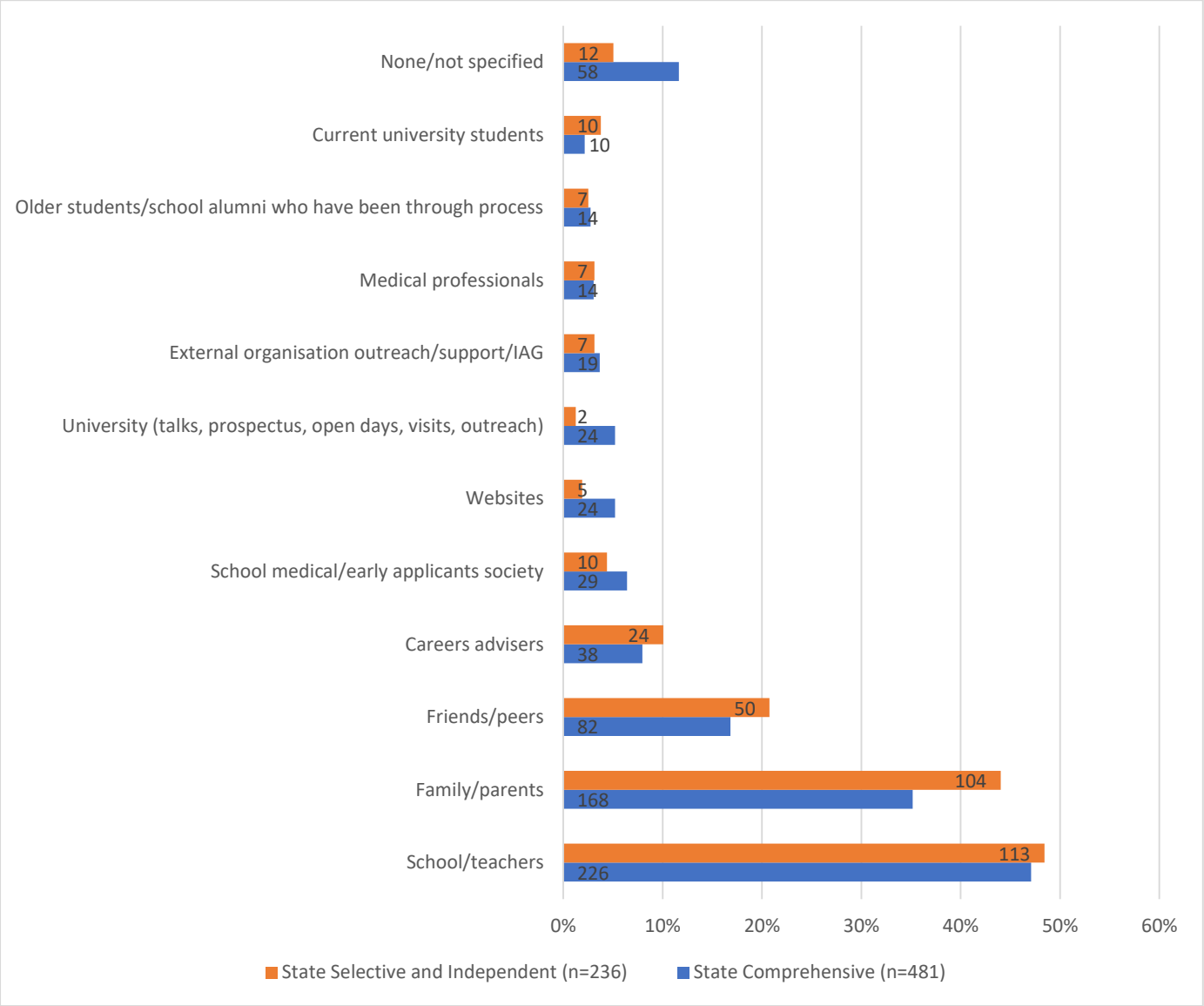


Figure 2.11: What support have you had with your research?

Bar chart showing the percentage and number of responses within each category from Year 12 respondents to the question *'What support have you had with your research?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 481). Orange bars depict responses from participants from the state selective and independent sectors (n = 236). Where responses made up a fractional margin of the overall results these were grouped together under an "other" category and were only included in the final analysis where helpful to do so.

Figure 2.12

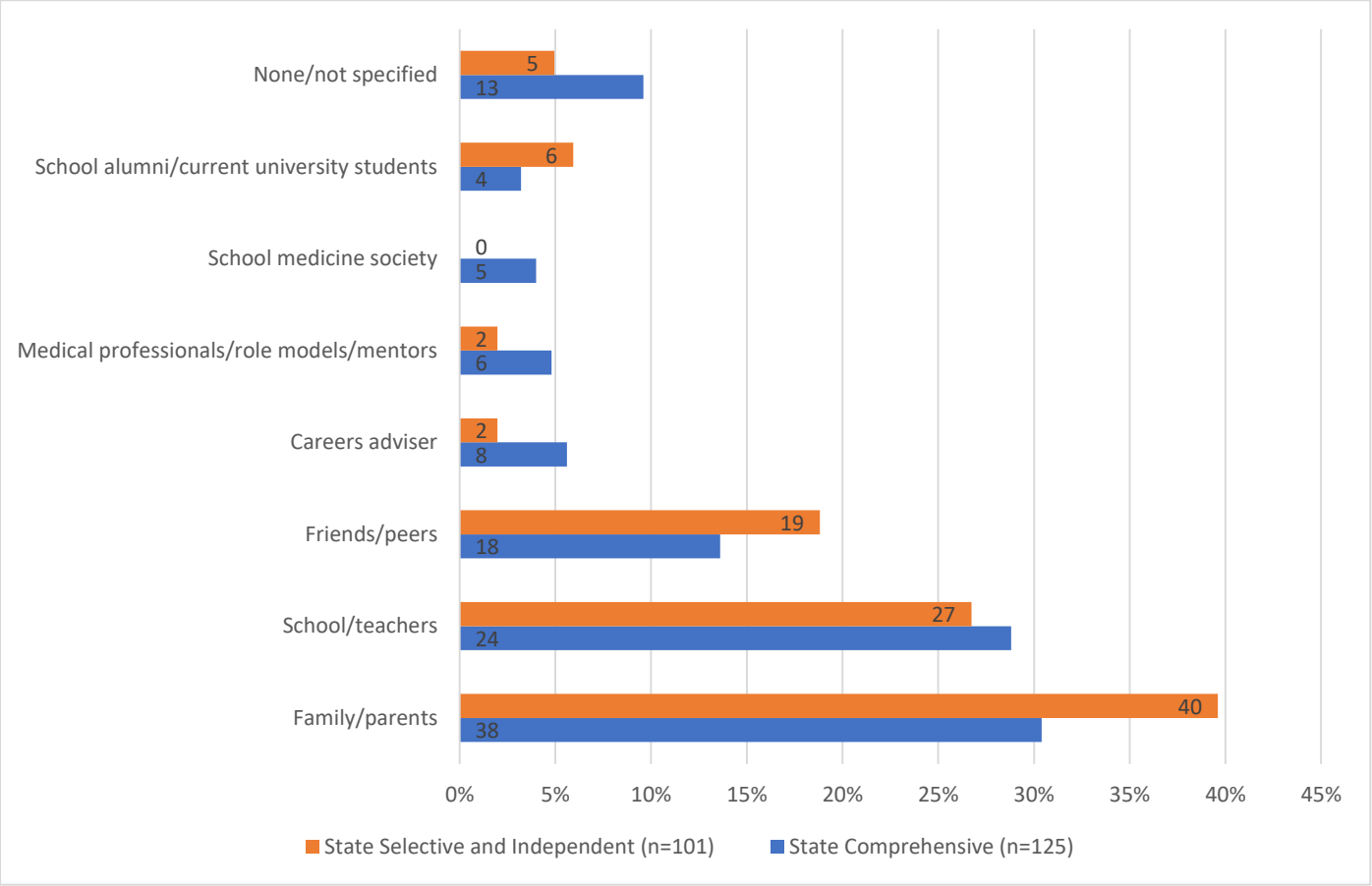


Figure 2.12: What support have you had with your research?

Bar chart showing the percentage and number of responses within each category from Year 13 respondents to the question *'What support have you had with your research?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 125). Orange bars depict responses from participants from the state selective and independent sectors (n = 101). Where responses made up a fractional margin of the overall results these were grouped together under an "other" category and were only included in the final analysis where helpful to do so.

Perhaps unsurprisingly at this stage, for Year 11 students in both sectors, the top sources of support were from family members and teachers, and also from internet searches and resources that they had been signposted to (from teachers and/or family members). At this stage, students are at their first key transition point and schools are actively getting them to consider their post-16 options so it is to be expected that they, along with parents/family as key influencers, are the primary source of support. What is interesting to note here is the greater proportion of state selective and independent sector respondents (13% compared to 4% for state comprehensive sector) that cited careers advisors specifically as a source of support. This would seem to correspond with discussions around resources mentioned in the teacher and careers advisor focus group in section 2.3.8 where independent schools in particular, but also state selective schools, afforded more resource for careers education and

advice than state comprehensive schools. It is likely that respondents in the state selective and independent sector had more access to dedicated careers advisors. However it is also possible that, as discussed in section 2.3.8, in the state comprehensive sector, these roles are more often built into staff members' existing duties and so respondents didn't necessarily equate the careers guidance they received from their school as being from a careers advisor and instead viewed the advice as being from 'just a teacher.' Or, as mentioned earlier, with state comprehensive schools not often having many applicants for medicine, it could be that the advice received is much more general rather than specialised towards medicine.

It is important to reflect on the distribution of advice at this stage in a student's journey, especially, as discussed earlier, where parents in particular may not always be confident or familiar in giving appropriate advice. We do not know from the responses how much of the advice and support that students were given was helpful or accurate. The students may have perceived a supportive experience in the empirical domain but their lived reality may have been built on misinformation that made their journey more difficult rather than less so. It would be interesting to reflect with students at the stage when they are at university (or whatever alternate path they choose) to see whether the support they felt they had been given had actually been helpful and/or accurate.

Responses to this question become more nuanced as we move into key stage 5 responses. Figure 2.11 shows that support from school and from family have further increased amongst Year 12 students from both the state comprehensive and state selective and independent sectors, as has support from friends. Active familial support was particularly prevalent amongst the state selective and independent sector responses. Knowledge and experience of the university process, and personal networks, appear to have enabled many parents to get involved in research and making connections for their child.

"My family is very supportive and knows a lot about different universities, we also get a lot of information from the school about how to apply, the best steps to take, etc."

"My mum is helping me find opportunities to improve my university application as well as a teacher at my school who has weekly meetings"

"Parents have helped me with extracurricular clubs, family members and friends have organised shadowing"
"Parents have given me advice on different career paths and through them I have talked to people in different fields"

"Mum helps me research different universities. Cousin tells me about her time as a medical student at university and how she got in"

Quotes from respondents in Year 12 state selective and independent sector schools to the question: 'What support have you had with your research?' in the questionnaire.

Whilst state comprehensive sector responses also cited familial support, the level of support appears to be more limited to encouragement rather than guidance. This is likely to be due to limited exposure to Higher Education or connections that may be able to provide additional support.

"Family encourage me to do it. Teachers help me structure research"

"My father is able to drive me to volunteering and to any outside University events and is a main source of transport"

"Family have been supportive as they have visited universities….with me to see what university in London is like"

"Parents, family and older friends are supportive helping take me to open days and giving their opinions on certain unis"

Quotes from respondents in Year 12 state comprehensive sector schools to the question: 'What support have you had with your research?' in the questionnaire.

Whilst, proportionally, there were still more respondents from the state selective and independent sector specifically citing careers advisors as a source of support (10%), there was also a marked increase in the number of respondents from the state comprehensive sector mentioning careers advisors as well (8%), leading to a 2% difference between the two sectors compared to a 9% difference for Year 11 respondents.

However, Year 12 respondents appeared more specific than respondents from the Year 11 cohort in citing their other sources of support in the research process. Respondents were now accessing support from universities and external organisations offering outreach and other IAG support and utilising peer support in the form of school-based medical societies or "early applicant" societies (early applicant referring to those intending to apply before the first UCAS deadline of October 15th either to meet the deadline for specific courses, such as medicine, or to apply to Oxbridge). It is interesting to note that these alternative sources of support were cited by proportionally more respondents from the state comprehensive sector than the state selective and independent sector. There could be a number of reasons for this, including a school's ability to support their students comprehensively using just internal resources, where the state selective and independent sector are more likely to have these resources available. As mentioned earlier in this section, university or other organisations' outreach programmes, tend to only be available to students from the state comprehensive sector and so this may again be a source that is more commonly cited by students from that sector.

One final thing to note in figure 2.11 is the difference in the proportion of respondents in the state comprehensive sector (12%) saying that they have not received any support or who did not cite any specific examples of support, compared to the proportion of respondents from the state selective and independent sector (5%). It is a concern that more respondents from the state comprehensive sector, compared to the state selective and independent sector, didn't feel they could articulate the support that they had received. This has notable change from the Year 11 responses where more students from the state selective and independent sector (9%) said they had received no support or did not cite specific examples of support compared to state comprehensive sector respondents (7%). Although the data is limited, one interpretation would suggest that the perception of provision improves for state selective and independent sector respondents between Year 11 and Year 12 but markedly worsens for respondents from the state comprehensive sector.

Looking now at the responses to the same question by Year 13 respondents in figure 2.12, we see once again that family and school far outweigh other sources of support in both the state comprehensive and state selective and independent sectors. However, it is worth noting that, particularly for the state selective and independent sector, family and parental support has moved markedly ahead of school and teacher support compared to Year 12 responses and falls back in line with Year 11 responses where family and parental were most cited. In essence, the data shows that both sectors are still drawing on the same important sources of support – school and social network – but the value that they get out of them varies by age and educational sector.

In a reversal from Year 11 and Year 12 responses, in figures 2.10 and 2.11 respectively, Year 13 respondents from the state comprehensive sector more frequently cited careers advisors specifically as a source of support (5% compared to 2% from the state selective and independent sector). Due to the low number of respondents to this particular question, it is not possible to pinpoint why this might be.

Interestingly, state selective and independent sector respondents did not cite school medicine societies – generally student-led societies (with possibly a contact teacher) that the school sets up for students all applying to medicine to come together and share information – as a source of support at all by Year 13 but these were still cited by state comprehensive sector respondents. By Year 13, school medicine/early application societies tend to focus on interview practise and support and are, therefore, still very much "active" for this cohort Responses from the teacher focus group, discussed in section 2.3.8, suggest that students in the state selective and independent sector may be receiving alternative forms of support

that they deem more valuable such as opportunities to speak to school alumni who have successfully attained a medical school place or to medical professionals, which may be why student societies have not been cited..

Perhaps the most surprising finding in figure 2.12 is that proportionally more respondents from the state comprehensive sector (5%) cited role models, mentors, and medical professionals as a source of support than state selective and independent sector respondents (2%). These connections may have been made as a result of engagement with outreach programmes (cited more frequently by state comprehensive sector students in Year 12) but it is not possible to confirm this from the results of this questionnaire. Again, the low numbers of respondents suggest that these data should be interpreted cautiously.

What can be seen across Year 11, 12 and 13 is that key influences of school, family and, to a lesser extent, friends consistently provide the greatest support to students in researching their Post-18 options and requirements for medical school applications. Therefore it is imperative these sources of support can easily access up-to-date and accurate information in relation to the medical school application process and support, as well as the students.

In relation to accessibility of information, the questionnaire also asked respondents from all year groups what, if anything, would further assist their decision making process. The overarching theme that transpired from all year groups and school types was that they wanted more advice, on all aspects of the application cycle, from universities directly, which is something that outreach practitioners need to carefully consider.

"I think talks would be a good idea and also visiting universities to get an idea of life after year 13 before you start year 12….I think if this is done at the beginning of year 11 or even end of year 10 so students can be introduced to the idea of thinking about future options instead of the sudden shock of having to pick A-Level options without knowing what they want to do after year 13."

Quote from a respondent in a Year 11 state selective school to the question: 'What further information would support your decision making?' in the questionnaire.

Early information and guidance was felt to be particularly imperative for subjects such as medicine where there were specific subject requirements and additional requirements that respondents thought would be helpful to be aware of at a much earlier stage.

"How to have the best chance of getting into medical schools, such as volunteering, would be useful information to have before year 8/9 because we can then plan ahead."

Quote from a respondent in a Year 11 state selective school to the question: 'What further information would support your decision making?' in the questionnaire.

A number of respondents indicated that receiving more information on what the requirements for courses such as medicine are, at a much earlier stage, would help them

focus more on their GCSEs and make more informed decision about their post-16 options. Worryingly, there were also indications that they felt that schools weren't always acting in the best interests of the student and were instead focused on what would most benefit the school.

"More support from the school….the school is too focused on our grades at GCSE, so that their statistics are higher, and that they don't always consider what we want to do in the future but rather tell us to take what we get the highest grades in. This benefits them but not us because they make us question what we really want to be. We had individual meetings earlier on in the year where I believe they should've focused it around our ideal job and university options rather than the grades we will get."

Quote from a respondent in a Year 11 state selective school to the question: 'What further information would support your decision making?' in the questionnaire.

This could be seen as a critical realist viewpoint from the student above who is acutely aware of the advantages to their school of students choosing a strong academic profile of subjects and believes this drives the advice and information that they receive.

Similar comments regarding objectivity also manifested themselves in responses from Year 13 students to the same question (Appendix B, figure B6).

*"I wish I was told **how** to pick universities, and not which ones [teachers think] are the best"*
"More objective opinions from students studying at each university"

Quotes from respondents in Year 13 state comprehensive sector schools to the question: 'What further information would support your decision making?' in the questionnaire.

Although these comments aren't directly reflected in the responses from Year 12 respondents to the questionnaire, there was an overwhelming request for more and earlier IAG, including more engagement with universities, suggesting that respondents did not feel that they had received timely support at the necessary level or breadth from their schools.

The state comprehensive sector respondents were particularly likely to feel that they would benefit from further support and guidance on the university admissions and application process. This is in line with students in the one-to-one interviews and focus groups who mentioned that they were largely unsupported because they were the only students, or one of very few, applying for medicine, and so their school didn't have the resources to support them in the same way as other students.

"We don't really get as much opportunities because our college don't tell us about things. We have to look ourselves. So they might just stick [information] on the wall and expect us to see it. They don't actually say anything."

"They don't really aid us that much. We mostly do all of it ourselves, so we're the ones researching. We're the ones researching the courses we want, we're the ones researching the universities…it's mostly ourselves doing the work."

Quotes from focus group participants from the state comprehensive sector, regarding school support on the university admissions and application process.

"There wasn't anybody who specifically knew much about medicine or the application process."

Quote from one-to-one interview participant 9, state comprehensive school attendee, regarding school support on the university admissions and application process.

More unexpected is that respondents from the state selective and independent sectors were, proportionally, more likely to feel they would benefit from greater exposure to current university students and medical professionals and a better understanding of the student/graduate experience. They were also proportionally more likely to suggest that more clarity and earlier information on entry criteria and the selection process would be beneficial. This is at odds with the perceived reality for students from this sector where they are assumed to have strong connections within the medical profession to support their understanding of the profession. Although we are unable to confirm this from the responses, one possibility for this could be that these responses relate to students from the state selective sector rather than the independent sector and the respondents were students from historically under-represented backgrounds who had secured a place at a state selective school but still lacked the networks and contacts of their more advantaged peers.

However, in further investigating responses to this question, it is clear that respondents from the state selective and independent sector don't completely lack knowledge or guidance in this area, but do feel that more and/or earlier interventions may have been helpful.

"Maybe interception from universities earlier on i.e. year 9/10 so you choose correct GCSE's/A-levels. People need to know exactly what applying to medicine/dentistry/vet med involves so you can get started as soon as possible"

"I think that graduates coming in to talk to us about their honest personal experiences….would make a world of a difference"

"Information on EPQ and if it's accepted. Information on whether or not further maths is accepted as an A-level of it is a 4th subject"

Quotes from respondents in Year 12 state selective and independent sector schools to the question: 'What further information would support your decision making?' in the questionnaire.

While they may be a helpful addition, not being in receipt of these extra levels of support is unlikely to have a major impact on their decision making or ability to apply for medicine/their chosen course. However, when looking at similar responses from state comprehensive sector respondents, although proportionally fewer of them felt they would benefit from greater exposure to current university students and medical professional or that earlier

information would be beneficial, their responses indicate that there seems to be a need for more fundamental knowledge.

"I wish I had more information about what was required to become a medical student"

"I wish that my school organised talks about certain courses which include students studying that course and health care professionals to stabilise our decision making. I wish I had known that work experience is essential for the course I want to study and the things I have to do to meet the success criteria for a successful application"

"I wish I was aware of how soon UKCAT exams have to be taken, the required results and how to gain work experience"

Quotes from respondents in Year 12 state comprehensive sector schools to the question: 'What further information would support your decision making?' in the questionnaire.

These respondents appear to still be unclear about what the minimum requirements are for making an application to medical school or the timescales involved. The support that they are requesting should be readily accessible, even just from university websites (if not from their school), but it appears that it is not as obvious to students as it should be. This is something that medical schools may wish to further consider for marketing and website design.

Prevalence and timeliness of IAG are also the most frequently mentioned suggestions by Year 13 respondents.

Respondents in Year 13 from the state comprehensive sector wanted to hear directly from universities and have access to university taster days or other forms of outreach, to better understand what specific universities have to offer and also to experience different teaching styles. They also felt that this would help them to better understand medicine itself as a course.

"More talks from universities that outline their strengths and focus on the specifics of their course instead of giving a generic overview about a six year med course"

"Not all universities offered taster lectures which I feel would have been helpful in making my decision"

"Having taster sessions or lectures about my course at the open day so I know exactly what it'll be like"

Quotes from respondents in Year 13 state comprehensive sector schools to the question: 'What further information would support your decision making?' in the questionnaire.

With regards to IAG, wanting more support in understanding alternative routes into medicine was also mentioned. Given the timeframe of when this questionnaire was distributed, this may have been because the respondents had already heard back from their medical school

applications and received negative responses but weren't clear on what their other options were or that they were still not quite decided on medicine as their firm path.

"It would be helpful to have a talk exploring the different pathways into getting into medicine via a non-traditional way"

"More information about universities….such as access schemes and foundation years"
Quotes from respondents in Year 13 state comprehensive sector schools to the question: 'What further information would support your decision making?' in the questionnaire.

Another running theme through the responses from Year 13 state comprehensive sector respondents is that they want universities to come and speak to them and to feel they are being actively encouraged to apply to an institution.

"Talks from university who encourage you to apply"

"Universities attending school to talk about courses they offer"
Quotes from respondents in Year 13 state comprehensive sector schools to the question: 'What further information would support your decision making?' in the questionnaire.

Respondents from the state selective and independent sector raised areas for further support focused on entrance exams and the admission process for university, particularly for medicine.

This corresponds with figure 2.08 where a proportionally higher number of state selective and independent sector responses cited entrance exams as their greatest challenge in terms of their research and preparation. However, respondents were not suggesting that they had no help with entrance examinations or the application process from their school, just that they felt they would benefit from more. There was also an indication that universities had a role to play in this with regards to clarity and transparency of information.

"….a little more UKCAT and BMAT support from school, but as long as you start looking into that at the start of year twelve, it should be fine"

"Further support and information from my school would have been more helpful, such as knowing the application process in more detail (e.g. the fact that prospective medical students have to complete UKCAT)"

"UCAS-related guidance from school to come earlier….more help at the start of year 12 about university and making course choices so it wasn't all rushed at the end and I could be certain about what I wanted to do"

"Sometimes I don't think universities are very clear on their application process"

"I feel that certain universities are known not to select certain kinds of students, and if I had known this in advance I wouldn't have applied as it is a reputation that seems to have been validated during my admissions process as well"

"Specific guidance as to how applications are assessed and ranked [in] the admissions process"

Quotes from respondents in Year 13 state selective and independent sector schools to the question: 'What further information would support your decision making?' in the questionnaire.

A breakdown of responses to the question 'What further information would support your decision making?' from all year groups and school types, can be found in Appendix B, figures B4-B6.

2.3.2 The university application process

Questionnaire respondents in Year 13, who had made an application via UCAS in the latest application cycle, were asked additional questions to further elucidate where additional support in the admissions process may be required.

When asked *'How have you found the experience of applying to University?'* Year 13s from both the state comprehensive and state selective and independent sectors replied broadly similarly. Some respondents listed both positive and negative attributes but more negative aspects were selected than positive ones, with respondents finding the process stressful, challenging, complex and long. From the positive attributes listed, the most popular one selected was that the process was good experience for the future. Figure B7 in Appendix B shows a full breakdown of responses. Respondents to this question also had an opportunity to add further comments if they wished under "other". This elicited some additional positive responses such as "exciting" and "motivating" but also some concerning negative observations such as *"much harder than necessary. Would've been a lot easier if I was rich. (Seems intentional)"* and *"Long and short because we have barely any time to make an informed decision on the course or university but the wait for replies after the application is horrendous."* Unfortunately, because these responses came in the questionnaire, it was not possible to follow up to unpack these comments. However there was a follow up question put to Year 13 respondents to the questionnaire asking them to reflect specifically on what the challenges of the application process are. Again this was a free text question and participants were not given options to choose from. Figure 2.13 shows there are striking differences between the responses from the state comprehensive sector and the state selective and independent sector.

Figure 2.13

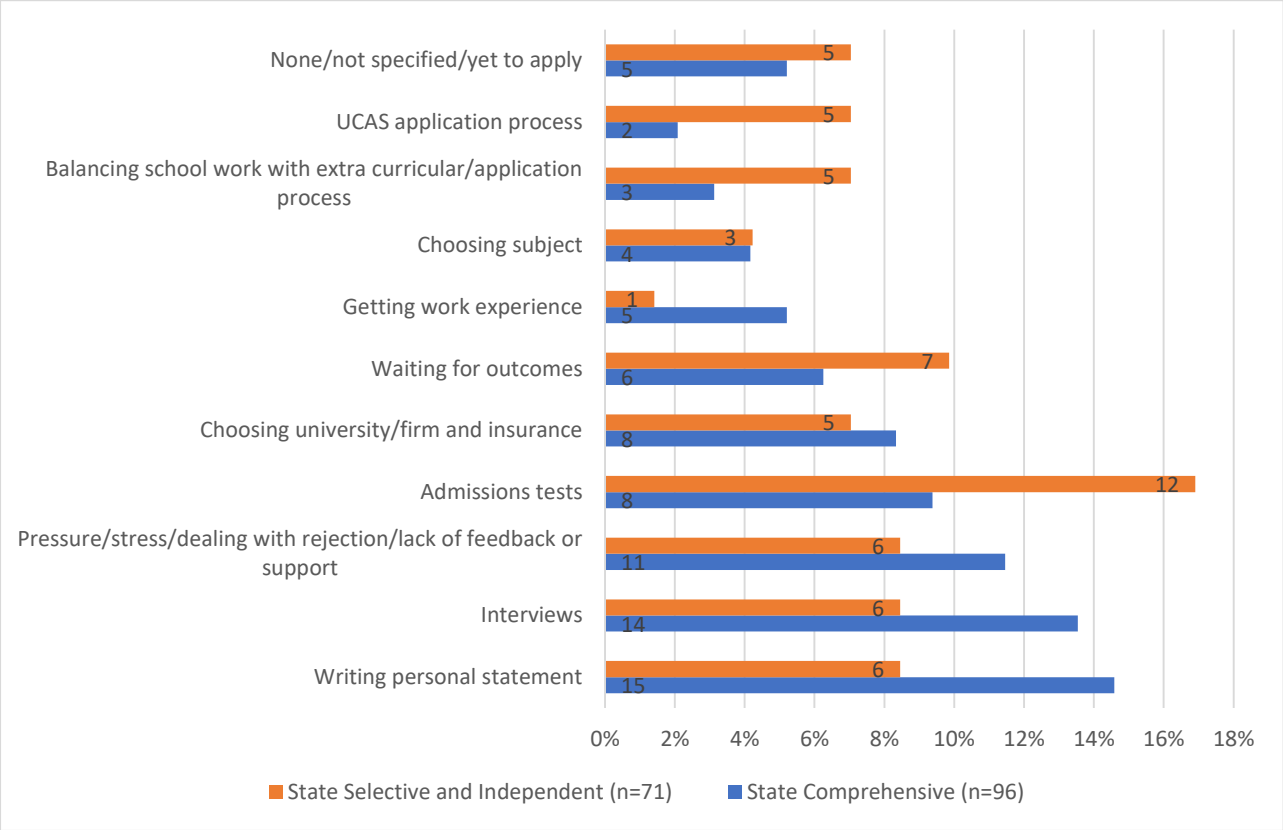


Figure 2.13: Please describe any challenges that you have found particularly difficult in terms of the application process.

Bar chart showing the percentage and number of responses within each category from Year 13 respondents to the question *'Please describe any challenges that you have found particularly difficult in terms of the application process'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 96). Orange bars depict responses from participants from the state selective and independent sectors (n = 71). Where responses made up a fractional margin of the overall results these were grouped together under an "other" category and were only included in the final analysis where helpful to do so.

In terms of the different elements of an application for medical school, the questionnaire data showed that writing the personal statement portion of a UCAS application form and preparing for interviews were perceived as the most challenging aspects of the application process. These tend to be regularly cited as difficult elements of the process and were mentioned in the focus groups and one-to-one interviews.

"I guess, making a personal statement really stand out and really prove how passionate you are about your subject. That's…hard."

"Well, you know you have your personal statement, it's not very long, so you only have a short amount of space to prove yourself... Every single thing needs to be checked before you can do it and it just takes a long, long time to get all the things done and processed...it's tough"

Quotes from focus group participants from the state comprehensive sector, regarding the challenges of the university admissions and application process for medicine.

"The school just offered one mock interview and it wasn't even really about medicine, it was generic so wasn't really helpful…[interview] preparation was hard"
Quote from one-to-one interview participant 1, state comprehensive school attendee, regarding the challenges of the university admissions and application process for medicine.

17% of responses from the state selective and independent sector (compared to 9% for the state comprehensive sector) perceived admissions tests (i.e. in the case of medicine, the BMAT and UCAT entrance examinations), as the most challenging aspect of the application process. As illustrated in earlier discussions and in figure B6 in Appendix B, this is in accord with respondents from the state selective and independent sector wanting more support with admissions tests.

What is more unexpected is the number of responses to this question, from across all school types, that mention the mental wellbeing aspects of the application process. Pressure and stress of the process alongside dealing with rejection and the lack of feedback or support in receiving rejections were cited as the greatest challenges of the process by 11% of responses from the state comprehensive sector and 8% of responses from the state selective and independent sector. On a similar theme, waiting for outcomes was also cited in 6% of the state comprehensive sector and 10% of the state selective and independent sector responses. Respondents mentioned the impact on their mental wellbeing of going through such a gruelling process and then getting little to no constructive feedback. They also mentioned the impact on their studies and general performance of undertaking the application process and then in waiting for outcomes that were then negative. The lengthy waiting times to receive the outcomes of medical applications, particularly compared to the shorter timeline for applications to other courses where peers may have applied later and heard back earlier was another area that was highlighted as impacting mental health and wellbeing. Respondents also talked about the pressure of trying to maintain focus on achieving the high grade requirements for medicine whilst also being distracted by the "not knowing" and/or interview preparation. This is also highlighted more specifically by the responses (3% of state comprehensive sector responses and 7% of state selective and independent sector responses) mentioning the challenge of balancing schoolwork with extracurricular activities (e.g. work experience) and the various aspects of the application process.

Students' lived reality is that they feel under pressure to maintain high performance levels whilst balancing a rigorous and lengthy application process including work experience, entrance examinations, interview preparations and likely some other form of extra-curricular activity (sports, music etc.), and in some cases a part-time job to support themselves

financially. However, respondents feel that little support or acknowledgement of this is given by schools or universities. To then also receive rejection without any feedback as to what can be improved, is something they found particularly difficult.

"It's stressful waiting to hear back from universities and soul destroying to receive rejections based on predicted grades"

"Rejections with no reasons following one of my first interviews is not constructive"

"Feeling pressured to apply to universities that supposedly would fit [entrance exam] scores received but then cut off scores fluctuating"

"Waiting for decisions was incredibly stressful. The interview process was also rather daunting and tough. I did not enjoy it whatsoever"

"….the whole notion and competitive nature of getting into medicine is extremely stressful….the application process tainted my entire Year 13 experience"

"It's too much stress to deal with on top of school work, especially UKCAT and interviews"

"[Entrance exam] clashing with everything else that was going on took an emotional toll on me. It was too much pressure on one exam"

"Managing stress over long waits to hear back from universities"

"Not ever thinking I've done enough to support my application"

Quotes from respondents in Year 13 state comprehensive and state selective and independent sector schools to the question: 'Please describe any challenges that you have found particularly difficult in terms of the application process?' in the questionnaire.

This is corroborated by comments made in the focus groups and one-to-one interviews where participants mentioned that it was hard to deal with the fact that you could feel like you have done everything right and yet still not achieve a place at medical school and that there is no guidance or support on dealing with that. Another aspect that was mentioned in the one-to-one interviews is how, despite having a deadline 3 months earlier than a majority of other courses, hearing back from medical schools – even with a straight rejection (i.e. not having gone through an interview process) – seemed to take much longer than other courses and it was really difficult seeing peers receiving offers etc. when they had applied so much later.

"I don't mind competition, but even if you get good grades, even if you have good work experience, you're not guaranteed a place. It's to do with the interviews, it's just really complicated how they choose. So since you're not guaranteed a place, I don't want to waste all my years on such a big [risk]….it's stressful."

Quote from a focus group participant from the state comprehensive sector, regarding the stressful aspects of applying to medicine.

"Other courses didn't have entrance exams. There was also interviews. Most of my friends didn't have interviews or other courses. And what was also hard was I think people were just getting offers for like everything and people were getting like four offers or five offers and for medicine it was very different. And I think it was difficult to balance the fact that like you're obviously having to work extremely hard for A-levels and apply and not hearing back for so long [made] it so hard to focus…I found that quite difficult…it was a lot of [stress]"
Quote from one-to-one interview participant 7, state comprehensive school attendee, regarding the stressful aspects of applying to medicine.

The other thing to consider in relation to the impact on mental wellbeing is that, for many students applying to medicine, they are often the highest achieving students in their school class or year group and so may not have previously ever had to face rejection or, in their eyes, "failure." If this is something that they are experiencing for the first time, and with such high stakes, the impact is likely to be even more severe.

The lived reality for admissions staff in medical schools is that they do not have the resource or capacity to either provide one-to-one feedback or shorten the timescales for responding to applications. However, knowing this would not make the experience any better for applicants. The reality of students' experiences is that they are mentally impacted by the process of applying to medical school which is likely to have an impact on their academic performance or they are deterred from applying because of their perceptions of the magnitude of the task ahead of them (or having seen older peers, family etc., go through the process). This is particularly likely to be so for students from historically under-represented backgrounds who are more likely to have other responsibilities alongside their studies and/or lack a peer support group going through the same process and challenges with whom they can share their anxieties and concerns, which then exacerbates the impact on their mental health. All of these are likely to lead to fewer students from historically under-represented backgrounds successfully navigating an application to medical school.

The questionnaire did pose a specific question about stress to both Year 12 and Year 13 participants. Using a Likert Scale, questionnaire participants from these year groups were asked *'How stressful have you found preparation for applying to university so far?'* Respondents from both the state comprehensive and state selective and independent sectors responded in a broadly similar fashion with 68% of state comprehensive and 66% of state selective and independent sector respondents in Year 12 scoring at the negative end of the scale (above neutral towards highly stressful). Worryingly, there is a negative change in Year 13 responses, with 85% of respondents from both sectors scoring at the negative end of the scale, though this could also reflect students already knowing the outcomes of their applications, particularly where they have been unsuccessful. It could, however, also reflect students feeling the stress of still waiting for outcomes of their UCAS application and

not knowing whether they hold any offers for a place at a medical school. Figures B8 and B9 in Appendix B show a breakdown of responses in detail. This again highlights the need to investigate the mental wellbeing impact of the application process.

Year 13 questionnaire participants were then asked what support could have helped lessen the challenges outlined in figure 2.13, in relation to the application process. This was a free text question with no options provided and respondents were able to provide multiple responses (i.e. not just focus on one challenge). Figure 2.14 shows responses which have been grouped where similar.

Figure 2.14

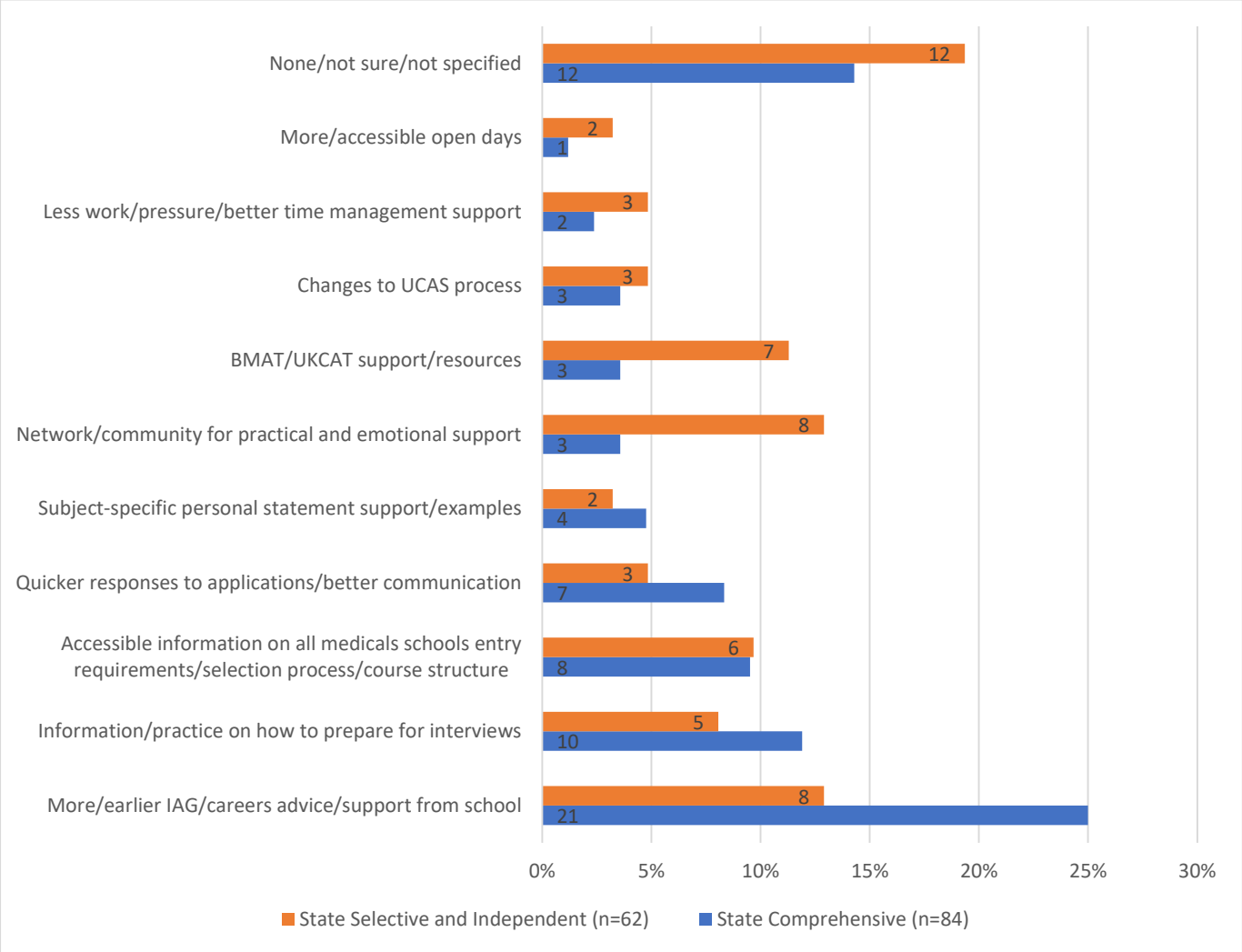


Figure 2.14: What support do you think might have lessened these challenges (from figure 2.13)?
Bar chart showing the percentage and number of responses within each category from Year 13 respondents to the question *'What support do you think might have lessened these challenges?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 84). Orange bars depict responses from participants from the state selective and independent sectors (n = 62). Where responses made up a fractional margin of the overall results these were grouped together under an "other" category and were only included in the final analysis where helpful to do so.

Figure 2.14 shows that more focus on IAG and timeliness of information was again the most popular suggestion for support (25% of state comprehensive sector responses and 13% of state selective and independent sector responses). There were also suggestions that interview preparation and support, easy to access and transparent information from medical schools about the selection process and/or the course structure and examples of subject-specific personal statements would be beneficial. Many of these areas have been discussed earlier in this chapter and we will look at the interview process in more detail shortly. Compared to responses in figure B6, Appendix B, respondents had a greater consideration of practical or systemic support that could help to reduce pressure on applicants, particularly with regards to their mental wellbeing.

Respondents from the state comprehensive sector were proportionally more likely (8% compared to 5% from the state selective and independent sector) to say shortening the time that it takes to receive outcomes from medical schools and having more frequent communication and/or status updates from the medical schools that they had applied to, would help to keep them informed and reduce how much they were distracted by "the waiting." State selective and independent sector respondents were proportionally more likely (13% compared to 4% from the state comprehensive sector) to suggest development of a network or community that offered support for the process, particularly the emotional aspects that have been discussed. Respondents wanted to be able to hear how current medical school students "survived" the process and tips they could share about how to manage things such as mental wellbeing and the very pressured and competitive nature of the application process. Interestingly, respondents also mentioned practical and emotional support in relation to their key influencers.

"Teachers working with me to reach my goal and not trying to hinder my progress by telling me how they think I will do! Allowing me to aim high"

"I think surrounding myself with supportive friends, family and even work environments/people who are understanding of my workload, so that if I may have lectures to attend, open days, interviews and pre-admissions tests (e.g. UKCAT and BMAT), they wouldn't have a problem with me having overlapping schedules"

"Career advisor being told to support choices and help regardless. There's a difference between realistic and discouraging"

Quotes from respondents in Year 13 state comprehensive and state selective and independent sector schools to the question 'What support do you think might have lessened these challenges?' in the questionnaire.

Respondents appear to face challenges of negative/lack of support from members of their key network that they feel they should be most able to rely on, with many saying their

teachers were discouraging them from pursuing medicine or not being accommodating of the additional processes and rigours that the application process for medicine requires (such as time off/support with interview preparation). As mentioned earlier in this chapter, feedback from the focus groups and one-to-ones also corroborated these experiences, particularly of not feeling supported and, in fact, actively discouraged by staff members. The potential impact of this on a student's mental health should not be underestimated. Students' experiences and lived reality indicate that this can end up being a very lonely and isolating process and it is important that this is factored into any considerations about support facilities to be made available to students.

We have already discussed respondents' desire for more transparency in the admissions and selection process, requirements etc. for medical school, and this is raised again in figure 2.14. Greater clarity for both applicants and their key influencers, on what each element of the process entails (e.g. open days, sitting entrance exams, interviews etc.) might yield greater understanding on issues such as needing to reprioritise or take time away from everyday commitments or highlight when there are pinch points and practical and/or emotional support is needed. It is just as important to ensure key influencers understand the process as the applicants themselves, not only so that they can provide practical and emotional support, but also so that applicants aren't left feeling like they have to constantly explain or defend their engagement with the medical school application process.

This also aligns with responses made citing less work and pressure as part of the application process and better support with time management. Respondents mentioned clashes between key application deadlines/activities and school activities.

"Less tests around this time in school and more help in working to balance them"

"Maybe teachers recognising a little more that having days off for interviews/offer holder days etc. means that we will have lots of work to catch up on and to give extra time for that"

"Mainly due to school – if the timings of our mock exams and EPQ deadlines were later/after October 15, I'd have had much more time to focus on my application"

"Support from teachers and the school, as they place more pressure on you about school work and mock exams rather than helping with feeding us more necessary information on university"

Quotes from respondents in Year 13 state comprehensive and state selective and independent sector schools to the question 'What support do you think might have lessened these challenges?' in the questionnaire.

Whilst some medical schools may be particularly looking at applicants' abilities to multitask, scheduling clashes and reticence from the school to allow additional time off for applicants to

engage in the process (particularly where they may need to attend open days/interviews at multiple institutions) is not a multitasking issue and medicals schools should do as much as they can to minimise the challenges that applicants face from their school in taking time off during term time. Whilst there is no 'easy fix' to this, if medical schools are able to provide more transparency in the expected commitments and timescales for their recruitment and selection processes, this may help applicants and their schools in negotiating an individual student's school commitments/deadlines to support their participation in the selection process.

2.3.3 The university interview and selection process

The discussion so far in this chapter has looked at the process of accessing information to support decision-making and for making a strong UCAS application and the experiences of those that have been through the process. This section now looks at the student perception of the interview and selection process to understand their views of the entrance test and interview process that make up part of the selection criteria for medical school applicants.

Questionnaire participants from all year groups were asked to rank seven elements that make up the general criteria for a medical school application, according to how important they thought they were to the university application process. The seven elements were academic studies, entrance tests (such as the BMAT and UCAT), personal statement, work experience, interview preparation, extra-curricular activities specifically related to the university application process and general extra-curricular activities not specifically related to the university application process. The responses were broadly consistent across all year groups and between the state comprehensive and state selective and independent sectors, with academic studies coming out as most important and extra-curricular not specifically related to the university application process coming out as least important. However, although the majorities are consistent between year groups, what is interesting to note is some of the shifts that also take place. For example, twice the proportion of Year 13 students from each school sector, compared to Year 11 students from each sector, thought that academic studies was the least important element of a university application, and a lower proportion of Year 13 students (compared to Year 11 and Year 12) ranked extra-curricular activities not specifically related to the university application, as the least important element. This is an interesting observation which may relate back to some of the findings discussed in section 2.3.2 where respondents almost felt that they didn't have time to focus on their academic studies in order to fulfil the various elements that they felt or were told that they needed to make a strong application for medical school. The full breakdown of responses for each element can be found in Appendix B, figures B10-B16.

Participants in the focus groups talked about their perceptions of the BMAT and UCAT entrance tests with many, particularly from the state comprehensive sector, saying that they felt the BMAT test was much more difficult and that there was less support for preparing for it both within school and in terms of free resources. They also felt themselves to be at a disadvantage compared to their peers in the state selective and independent sector where they felt students had access to greater school-level support and resource to prepare for entrance tests and greater financial capacity to pay for commercial courses and materials that claim to prepare students for entrance tests. However, focus group and one-to-one interview participants from the state selective and independent sectors also said that they found the BMAT entrance test more difficult to prepare for so there may well be a perception of advantage rather than any actual advantage. We have already discussed how students' perceptions of advantage in relation to entrance exams may not align with the lived reality but that this perception can have an impact on confidence (either negatively or positively) that may affect performance. A number of focus group and one-to-one interview participants also mentioned that they felt that it was a risk to apply to institutions that used the BMAT entrance test because you had to submit your UCAS application before you received your BMAT results. This has now been mitigated by the organisation that administer the BMAT test and there is now an opportunity to take an early sitting of the BMAT test, though these would be taken in school rather than at a test centre (though some schools are also test centres anyway). However, at the time of writing, although a vast majority do, not all medical schools that use BMAT entrance tests as part of their selection process accept the earlier sitting of the BMAT and expect students to take the second sitting of the BMAT test in order to be eligible for consideration at their medical school. This may have acted as a deterrent for some students in taking up the opportunity to sit the BMAT test in the earlier window. The current global coronavirus pandemic has also meant that the arrangements for the early sitting of the BMAT are no longer possible and so it has had to be paused. During the final revisions to this thesis, Cambridge Assessment withdrew the BMAT entrance test meaning that 2023 was the last year that it ran. The impacts of this are yet to be seen but this point is further considered in Chapter 5.

In light of these discussions in the focus groups and one-to-one interviews about the entrance tests, the questionnaire asked participants about how difficult they perceived the BMAT and UCAT entrance tests to be. The questionnaire participants were asked to rate the difficulty of both entrance tests on a Likert Scale from 'not at all difficult' to 'very difficult' and they were also given the option to indicate that they were not familiar with the test if that was the case. Figures 2.15 and 2.16 show the responses of Year 11, 12 and 13 respondents for BMAT and UCAT respectively.

It should also be noted that, although this thesis predominantly refers to the UCAT entrance test, at the time of data collection for this project, it was still called the UKCAT entrance test and had not yet been rebranded. As such all participants (one-to-one interviews, focus groups and questionnaires) were asked about the UKCAT entrance test, though for consistency and to avoid confusion, in the figures and other references throughout, the test is referred to as the UCAT to reflect the current name.

Figure 2.15

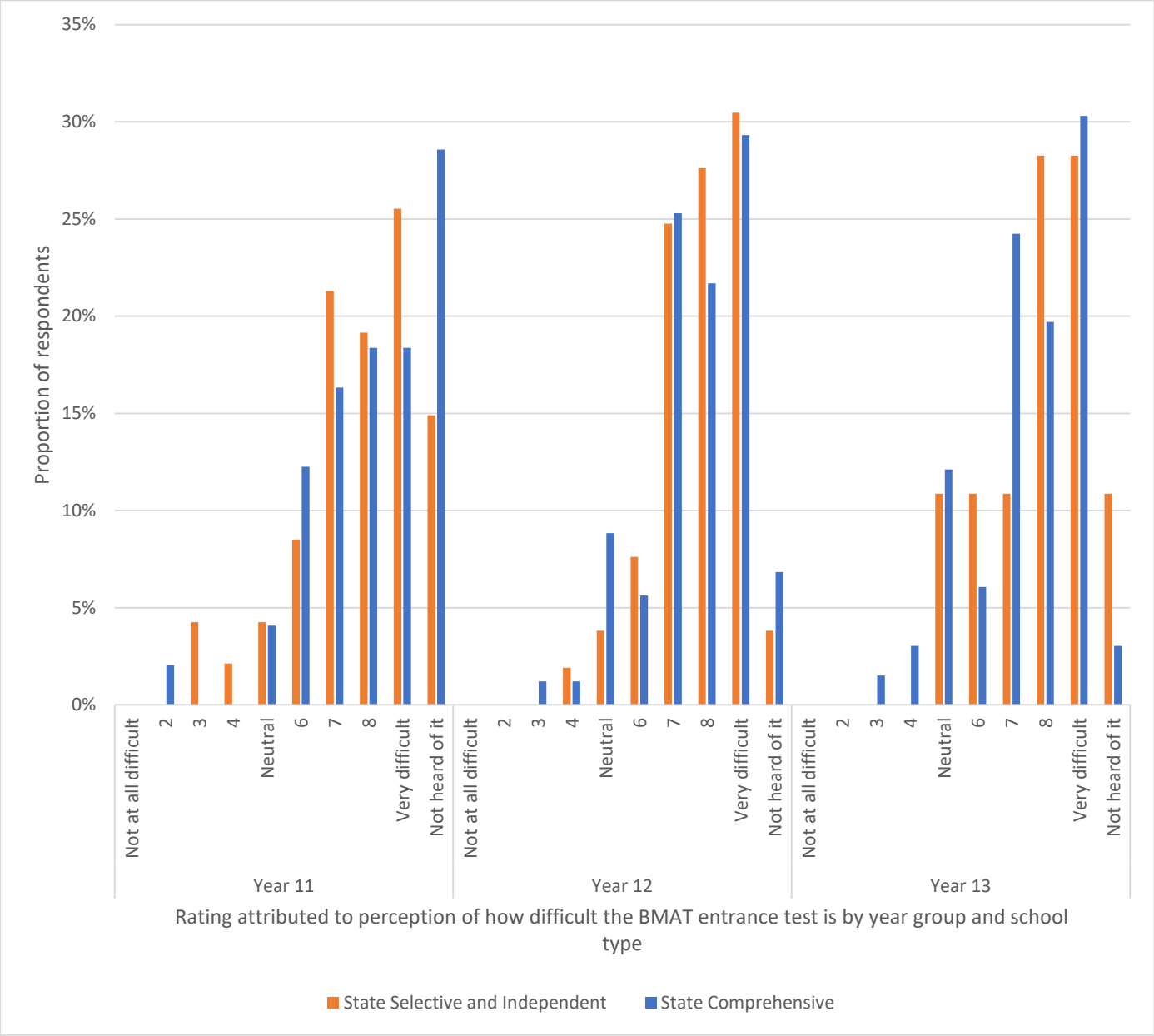


Figure 2.15: How difficult would you say the BMAT entrance test is?

Bar chart showing the percentage of responses within each category from Year 11, 12 and 13 respondents to the question *'How difficult would you say the BMAT entrance test is?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (Year 11, n = 49; Year 12, n = 249; Year 13, n = 66). Orange bars depict responses from participants from the state selective and independent sectors (Year 11, n = 47; Year 12, n = 105; Year 13, n = 46).

Figure 2.16

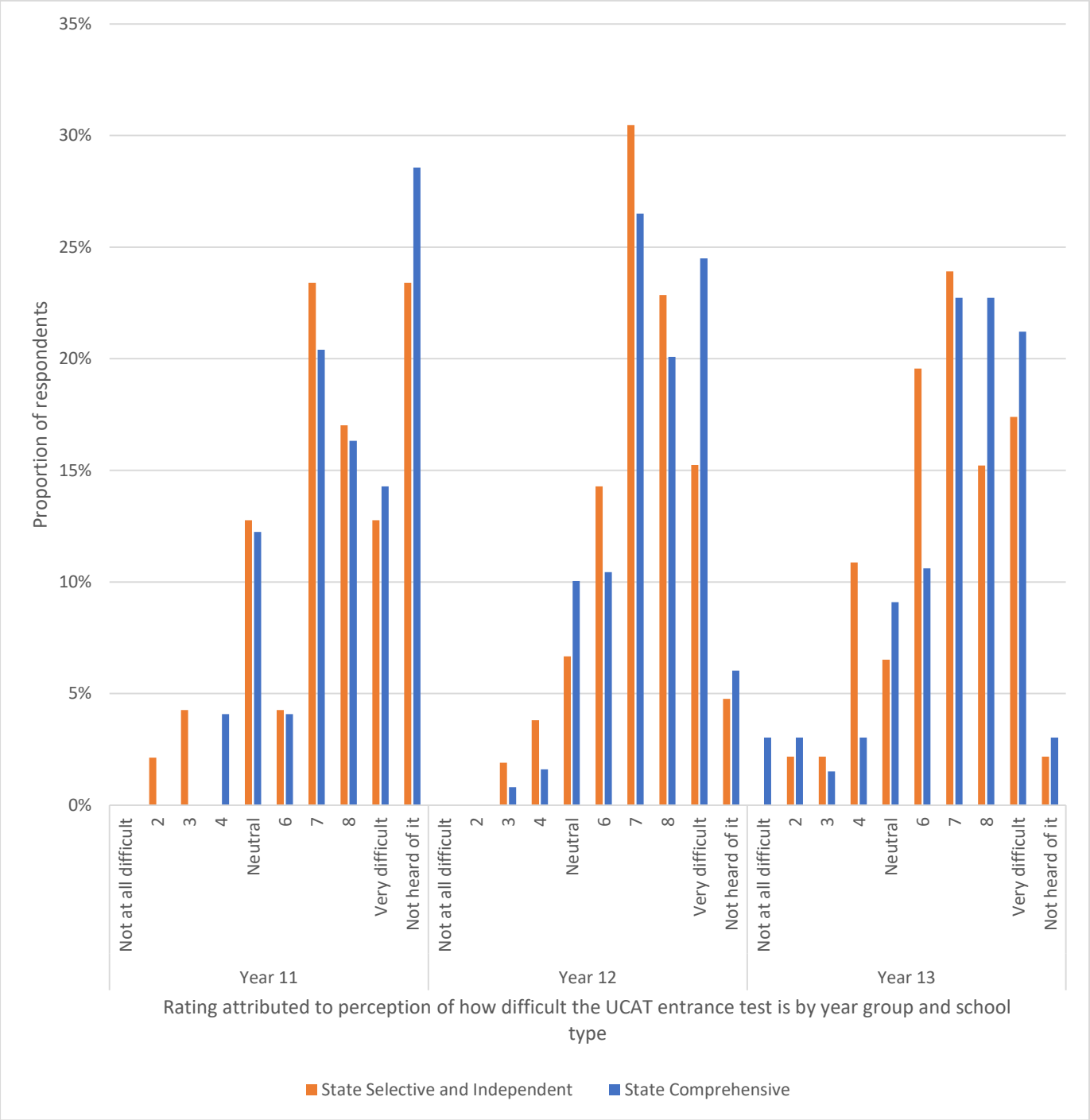


Figure 2.16: How difficult would you say the UCAT entrance test is?

Bar chart showing the percentage of responses within each category from Year 11, 12 and 13 respondents to the question *'How difficult would you say the UCAT entrance test is?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (Year 11, n = 49; Year 12, n = 249; Year 13, n = 66). Orange bars depict responses from participants from the state selective and independent sectors (Year 11, n = 47; Year 12, n = 105; Year 13, n = 46).

Figures 2.15-2.16 show that respondents from all year groups and school types were proportionally more likely to perceive the BMAT entrance test as 'very difficult' than the

UCAT entrance test. This is in line with the qualitative findings from the one-to-one interviews and focus groups.

When looking at Year 11 responses, 68% of state comprehensive sector respondents scored the BMAT test as 6 or above on the difficulty scale and 54% did the same for the UCAT test. This is actually lower than the Year 11 state selective and independent sector responses at 75% and 56%, respectively. These ratings increase when looking at Year 12 responses across both sectors. However, a greater proportion of state comprehensive sector respondents in Year 11 said that they had not heard of either test which may influence their perceptions of how difficult they are and may explain why they rated them lower on the difficulty scale than their selective and independent sector counterparts. If a student hasn't heard of the test then they will find it difficult to gauge its difficulty.

In a similar way to the BMAT and UCAT entrance tests, the qualitative aspects of this project also suggested that there are divided opinions on the difficulty of panel interviews for medicine compared to the (at the time of data collection) relatively newly emerging MMI interviews. Focus group participants were generally quite sceptical about the concept of MMIs and had a fear of the unknown. Some of the one-to-one interview participants had experienced MMIs, and in some cases had experienced multiple MMIs, having interviewed at multiple medical schools. In these cases of multiple MMI interview experience, participants often had differing views of each MMI experience – even where the outcome of whether they received an offer was the same – suggesting that how the MMI process is run can have a significant impact on a student's performance and perception of it as an effective selection tool. Panel interviews, despite their more intense mode of delivery, were favoured by many participants in the one-to-one interviews and focus groups, particularly with those from the state selective and independent because, it was felt, that the students could do more to 'prepare' for these. It should also be noted that, at the time of data collection, Imperial College London, who I was representing when collecting data, used panel interviews as part of their selection criteria and that this could have influenced responses to suggest that panel interviews were the more rigorous method of selection.

To further investigate student perception of the panel and MMI interview processes, the questionnaire asked participants to reflect on how difficult they perceived each to be. Figures 2.17 and 2.18 show responses from Year 11, 12 and 13 students for panel interviews and MMIs respectively.

Figure 2.17

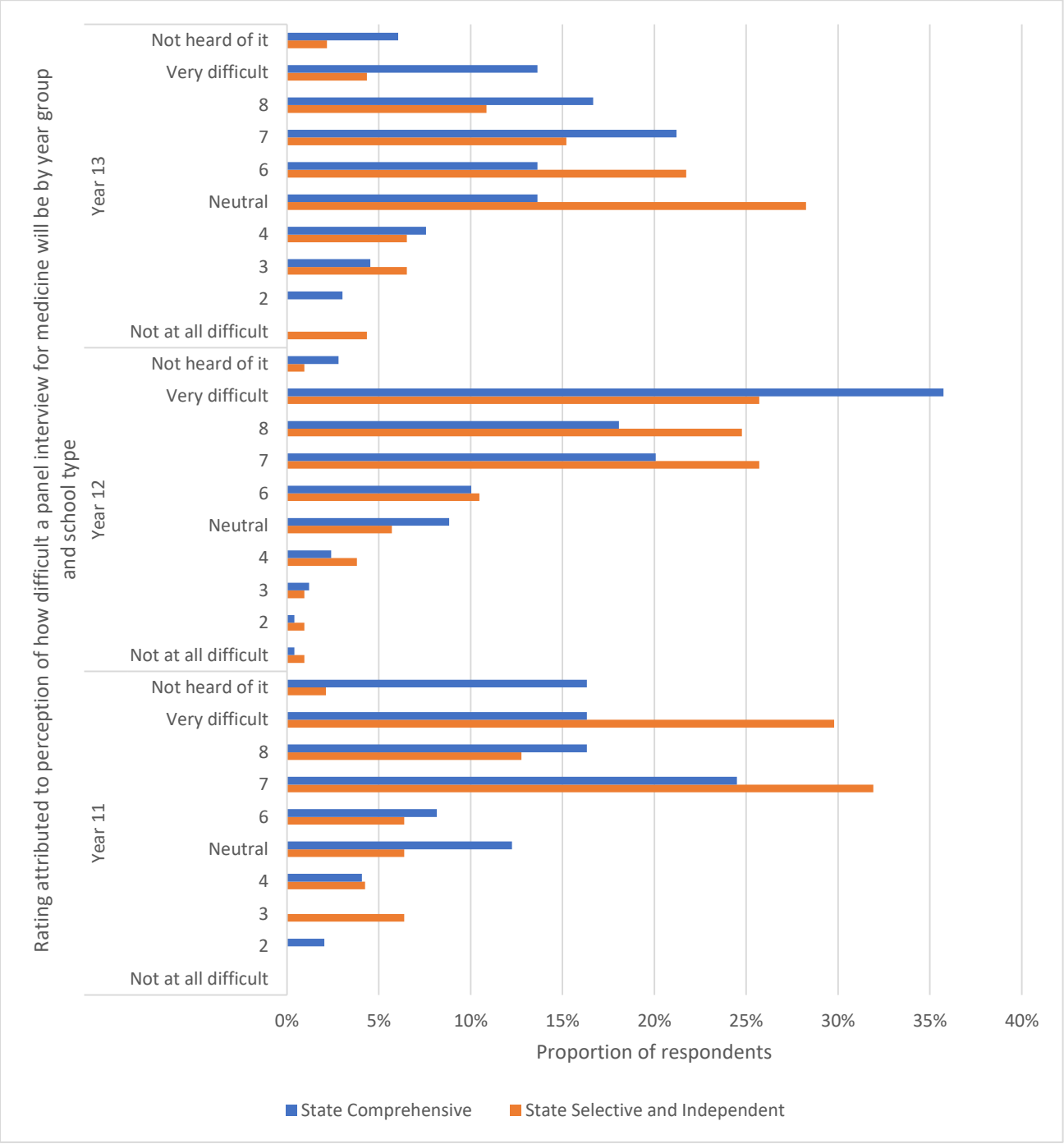


Figure 2.17: How difficult do you think a panel interview for medicine will be?

Bar chart showing the percentage of responses within each category from Year 11, 12 and 13 respondents to the question *'How difficult do you think a panel interview for medicine will be?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (Year 11, n = 49; Year 12, n = 249; Year 13, n = 66). Orange bars depict responses from participants from the state selective and independent sectors (Year 11, n = 47; Year 12, n = 105; Year 13, n = 46).

Figure 2.18

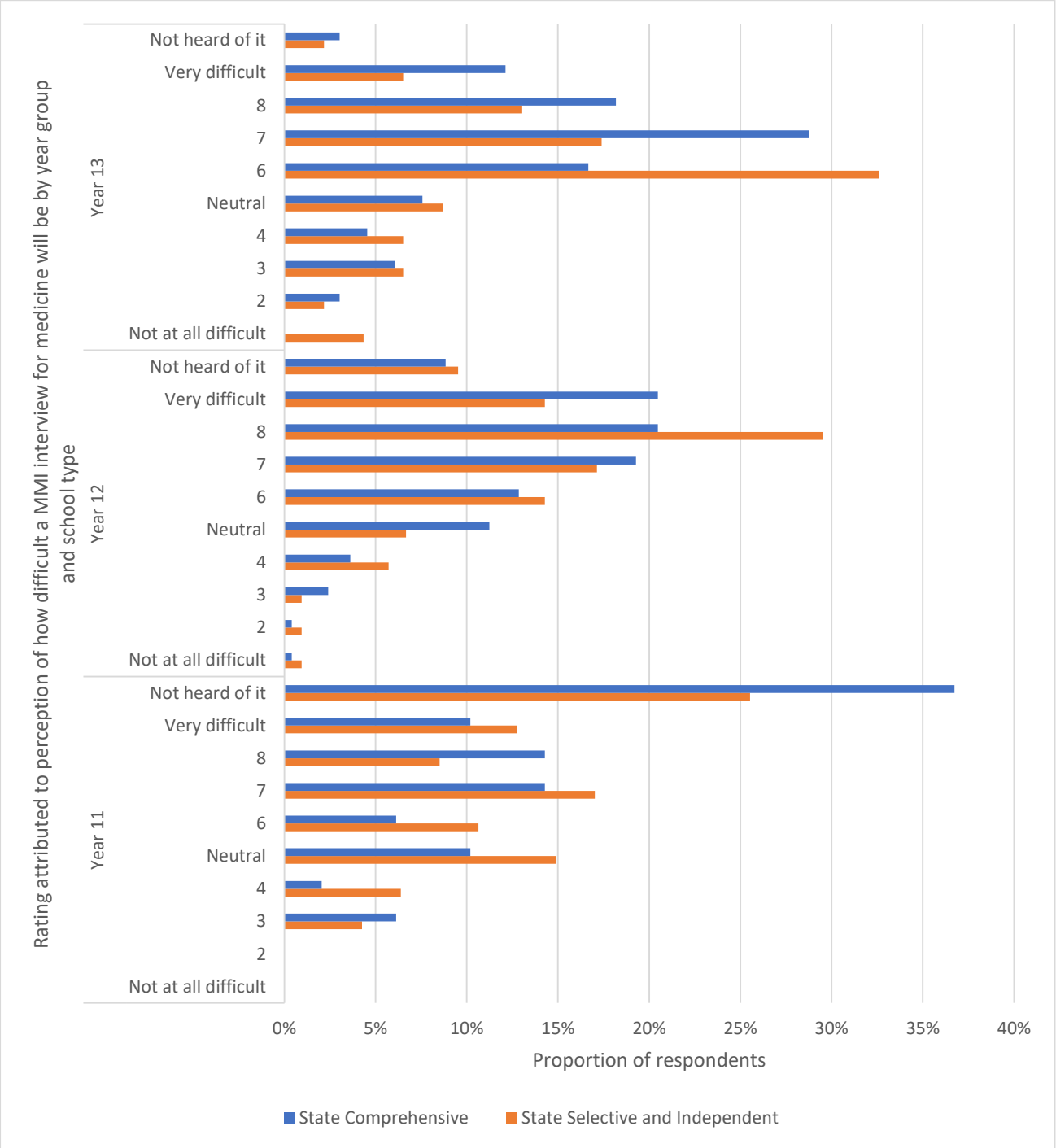


Figure 2.18: How difficult do you think a MMI interview for medicine will be?

Bar chart showing the percentage of responses within each category from Year 11, 12 and 13 respondents to the question *'How difficult do you think a MMI interview for medicine will be?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (Year 11, n = 49; Year 12, n = 249; Year 13, n = 66). Orange bars depict responses from participants from the state selective and independent sectors (Year 11, n = 47; Year 12, n = 105; Year 13, n = 46).

What is immediately noticeable from figures 2.17-2.18 are that a greater proportion of Year 12 and 13 respondents from the state comprehensive sector scored both interview methods

as ‘very difficult’ than their peers in the state selective and independent sector. It is also interesting that the proportion of selective and independent sector students scoring interviews on the higher end of the difficulty scale drops after Year 11 – perhaps suggesting that they have greater access to some practice, particularly for panel interviews. However, as with the entrance tests, a greater proportion of Year 11 and 12 respondents from the state selective and independent sector scored both types of interview as 6 or above on the difficulty scale. Once again it is only the Year 13 respondents, who may have had experience of one or maybe both of these types of interviews by the time they completed the questionnaire, where responses from the state comprehensive were proportionally more likely to be at the higher end of the difficulty scale. The Year 13 responses are particularly important to take note of because, conceptualising in a critical realism framework, they have transferred their experience from the empirical domain to the actual domain, by which I mean that they no longer just perceive the difficulty (or not) of the experience but will, by now, have actually experienced it so are able to give a more authentic response rather than an assumed one.

2.3.4 Experience of undertaking the application process for medical school

Having looked at perceived challenges and difficulties of the application process for medicine, this section now looks at how Year 12 and Year 13 students have apportioned their time to prepare their application and how prepared they felt as a result. We wanted to see whether there was any correlation between how much time students spent focusing on the various elements that feed into an application for medical school and how challenging and/or important they found each aspect.

Year 12 and Year 13 respondents to the questionnaire who had stated that they had or intended to apply to medicine were asked to apportion how much of their time over the last 12 and 24 months respectively that they had spent on each of the seven elements that they had ranked in Appendix B, figures B10-B16. The seven elements were academic studies, entrance tests (i.e. BMAT and UCAT), personal statement, work experience, interview preparation, extra-curricular activities specifically related to the university application process and general extra-curricular activities not specifically related to the university application process.

Year 12 responses were broadly similar for both sectors and, as figures B17-B21 in Appendix B show, were largely concentrated towards the lower end (0-10%) of the scale for most of the elements. However, there were two elements where contrasts could be seen between the state comprehensive and state selective and independent sector Year 12

respondents, as outlined in figures 2.19-2.20 below. Figure 2.19 shows that state comprehensive sector respondents were proportionally more likely (56%) to spend more than half of their time on academic studies compared to their peers in the state selective and independent sector (42%).

Figure 2.19

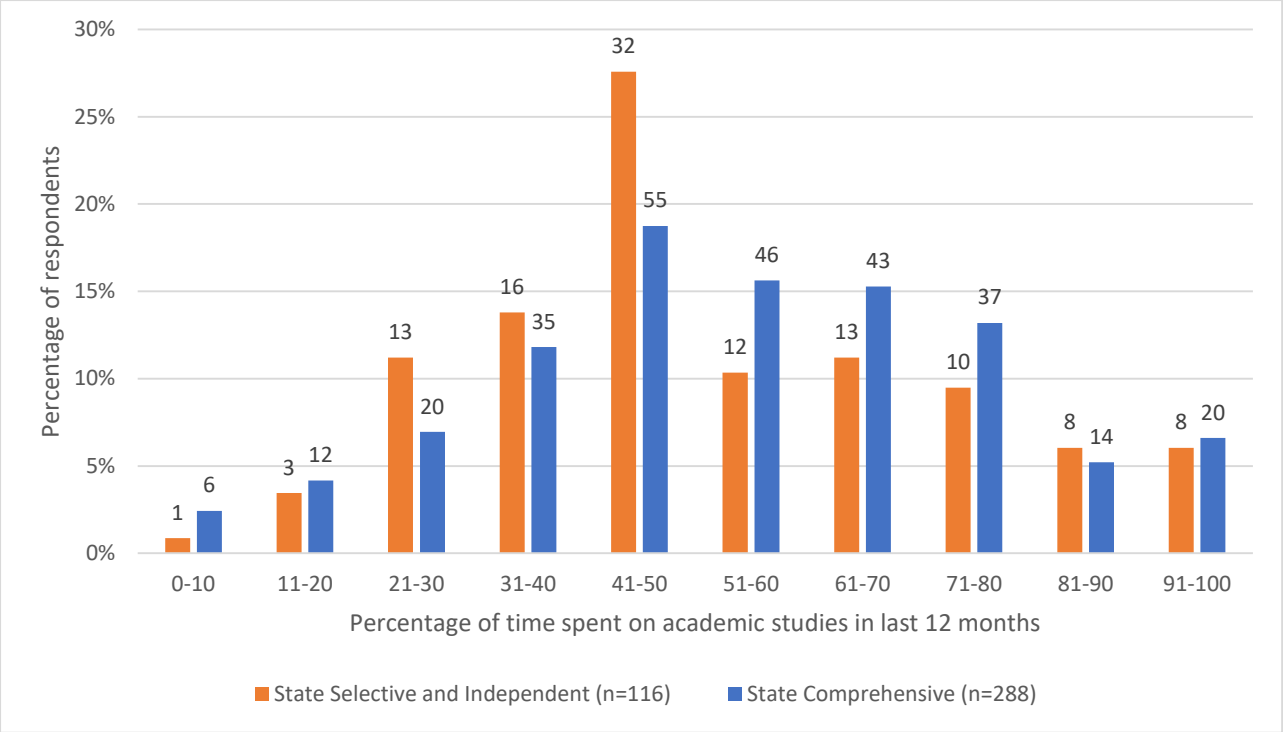


Figure 2.19: How much of your time over the past 12 months have you spent focusing on your academic studies?

Bar chart showing the percentage and number of responses within each category from Year 12 respondents to the question *'How much of your time over the past 12 months have you spent focusing on your academic studies?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 288). Orange bars depict responses from participants from the state selective and independent sectors (n = 116).

Figure 2.20 shows that state comprehensive sector respondents spent less of their time than their state selective and independent sector peers on undertaking extra-curricular activities specifically to support medical school applications.

Figure 2.20

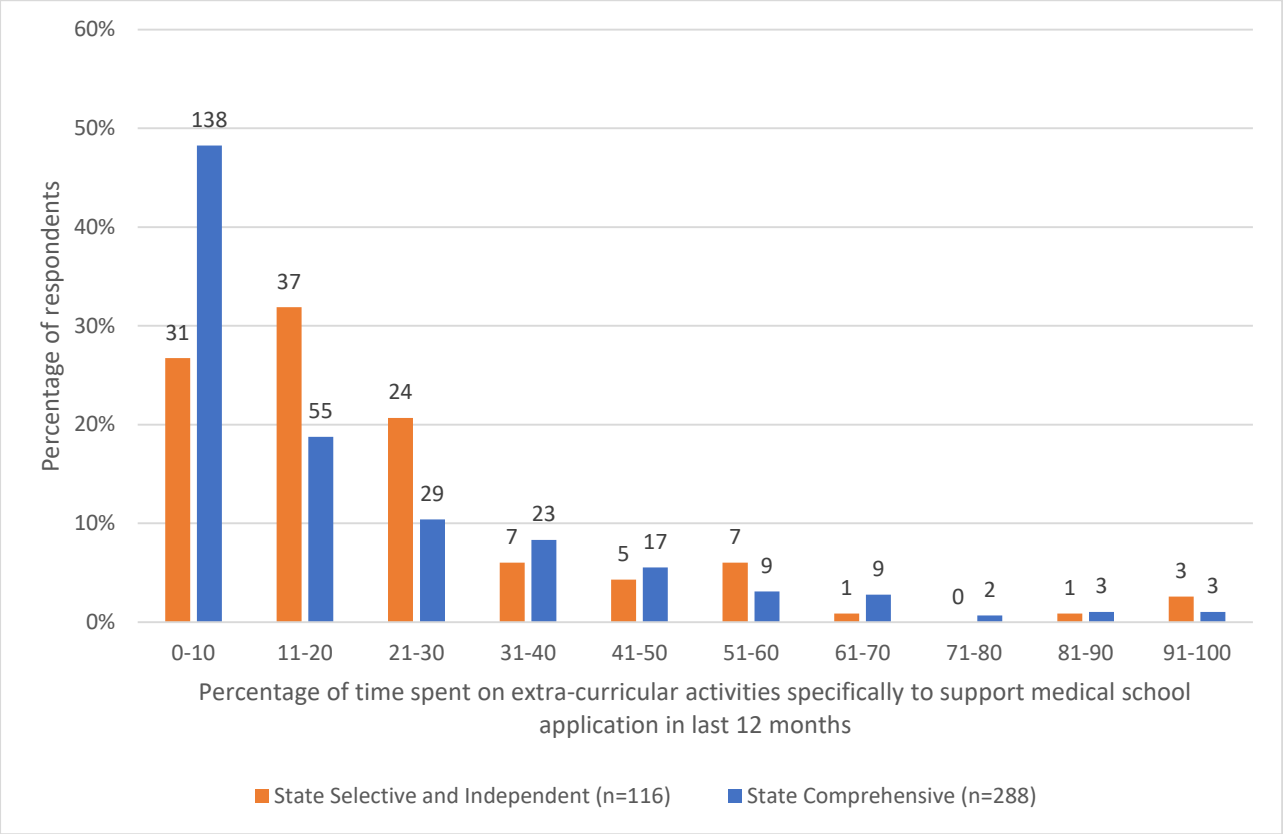


Figure 2.20: How much of your time over the past 12 months have you spent focusing on undertaking extra-curricular activities specifically to support medical school applications?

Bar chart showing the percentage and number of responses within each category from Year 12 respondents to the question *'How much of your time over the past 12 months have you spent focusing on undertaking extra-curricular activities specifically to support medical school applications?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 288). Orange bars depict responses from participants from the state selective and independent sectors (n = 116).

Figures 2.21-2.27 show how Year 13 respondents to the questionnaire who had applied to medicine, apportioned their time over the past 24 months on the same seven elements as Year 12 above. What is interesting to note here is that, whilst respondents from all sectors spent roughly the same amount of time on their academic studies, the way they spent the rest of their time *may* indicate less focus on medicine-specific elements. Although we cannot elucidate from the questionnaire responses why this may be or whether respondents, on reflection, felt they apportioned their time effectively, it is interesting to see that the two elements that state comprehensive sector students indicated that they dedicated slightly more time to than their state selective and independent sector peers are the two that would be deemed as generic to any HE course and, perhaps, the ones that their school teachers and advisors felt most confident in supporting them with. This may further support findings earlier in this chapter and comments from the focus groups and one-to-one interviews where participants from the state comprehensive sector suggested that they did not get as much

medicine-specific information and support from their schools as they felt they needed and/or in a timely manner. If students are not aware of or cannot access opportunities or support for medicine-specific elements of the application process then this will impact how important they deem those elements to be and/or much of their time they spend on those elements, which may affect their preparedness or success with the overall medical school application. Further research would be required to confirm whether this is actually the case.

Figure 2.21

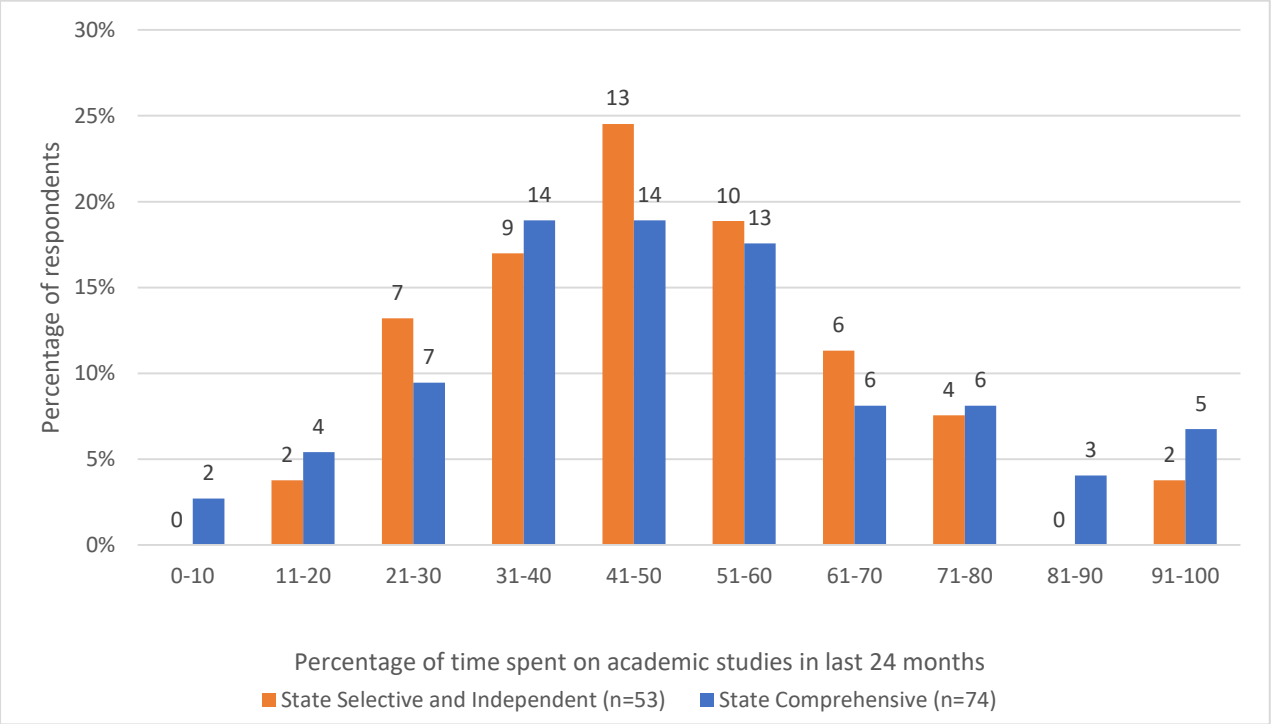


Figure 2.21: How much of your time over the past 24 months have you spent focusing on your academic studies?

Bar chart showing the percentage and number of responses within each category from Year 13 respondents to the question *'How much of your time over the past 24 months have you spent focusing on your academic studies?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 74). Orange bars depict responses from participants from the state selective and independent sectors (n = 53).

Figure 2.22

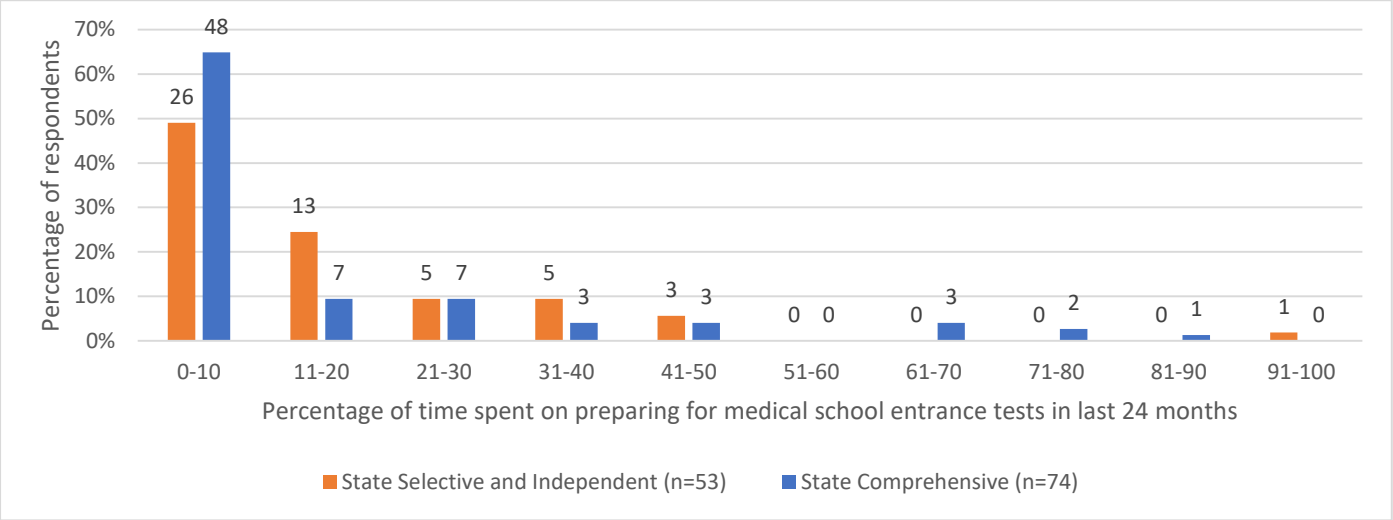


Figure 2.22: How much of your time over the past 24 months have you spent focusing on preparing for medical school entrance tests?

Bar chart showing the percentage and number of responses within each category from Year 13 respondents to the question *'How much of your time over the past 24 months have you spent focusing on preparing for medical school entrance tests?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 74). Orange bars depict responses from participants from the state selective and independent sectors (n = 53).

Figure 2.23

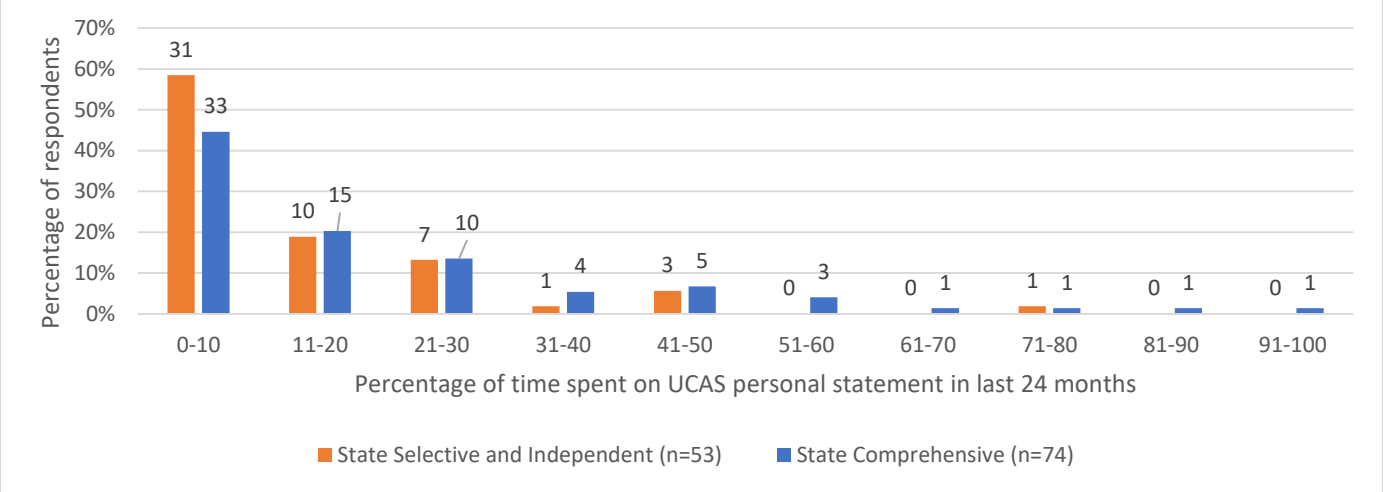


Figure 2.23: How much of your time over the past 24 months have you spent focusing on preparing a UCAS personal statement?

Bar chart showing the percentage and number of responses within each category from Year 13 respondents to the question *'How much of your time over the past 24 months have you spent focusing on preparing a UCAS personal statement?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 74). Orange bars depict responses from participants from the state selective and independent sectors (n = 53).

Figure 2.24

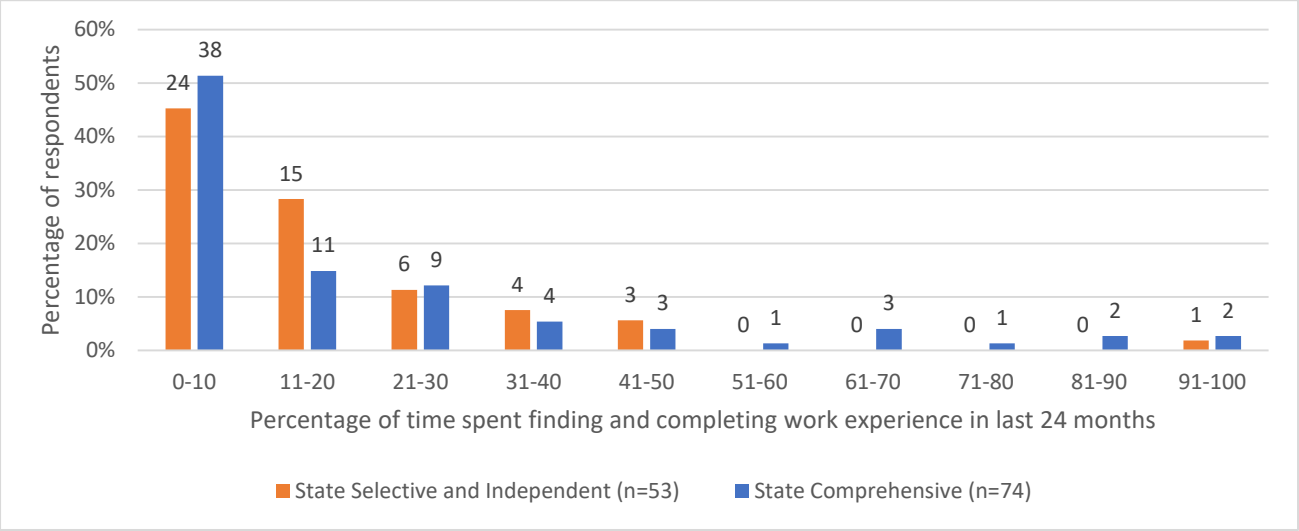


Figure 2.24: How much of your time over the past 24 months have you spent focusing on finding and completing work experience?

Bar chart showing the percentage and number of responses within each category from Year 13 respondents to the question *'How much of your time over the past 24 months have you spent focusing on finding and completing work experience?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 74). Orange bars depict responses from participants from the state selective and independent sectors (n = 53).

Figure 2.25

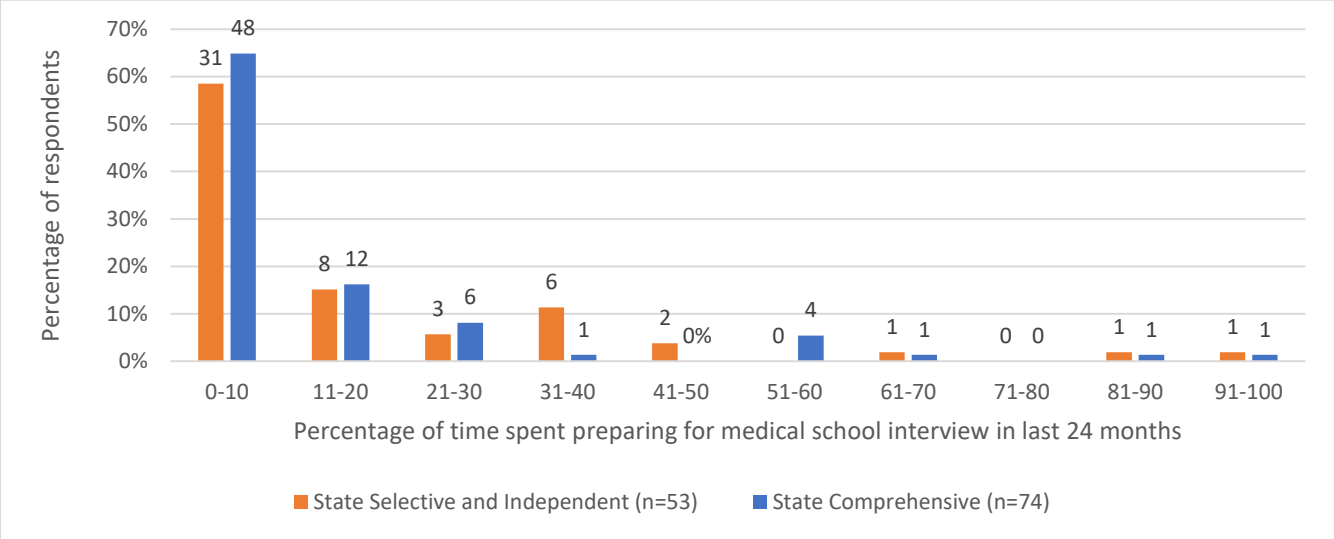


Figure 2.25: How much of your time over the past 24 months have you spent focusing on preparing for medical school interviews?

Bar chart showing the percentage and number of responses within each category from Year 13 respondents to the question *'How much of your time over the past 24 months have you spent focusing on preparing for medical school interviews?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 74). Orange bars depict responses from participants from the state selective and independent sectors (n = 53).

Figure 2.26

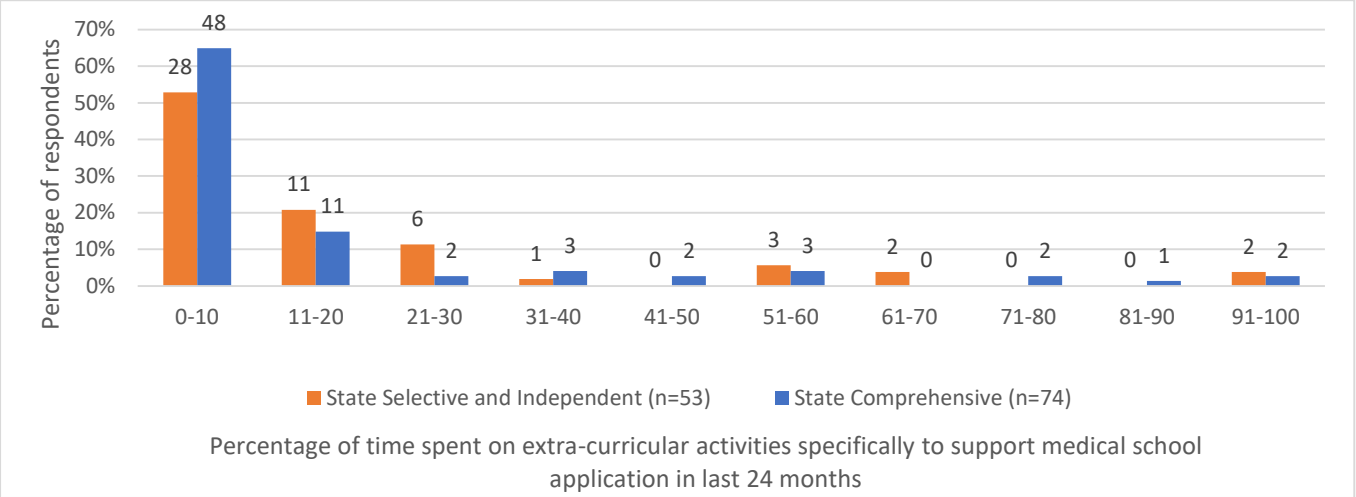


Figure 2.26: How much of your time over the past 24 months have you spent focusing on undertaking extra-curricular activities specifically to support medical school applications?

Bar chart showing the percentage and number of responses within each category from Year 13 respondents to the question *'How much of your time over the past 24 months have you spent focusing on undertaking extra-curricular activities specifically to support medical school applications?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 74). Orange bars depict responses from participants from the state selective and independent sectors (n = 53).

Figure 2.27

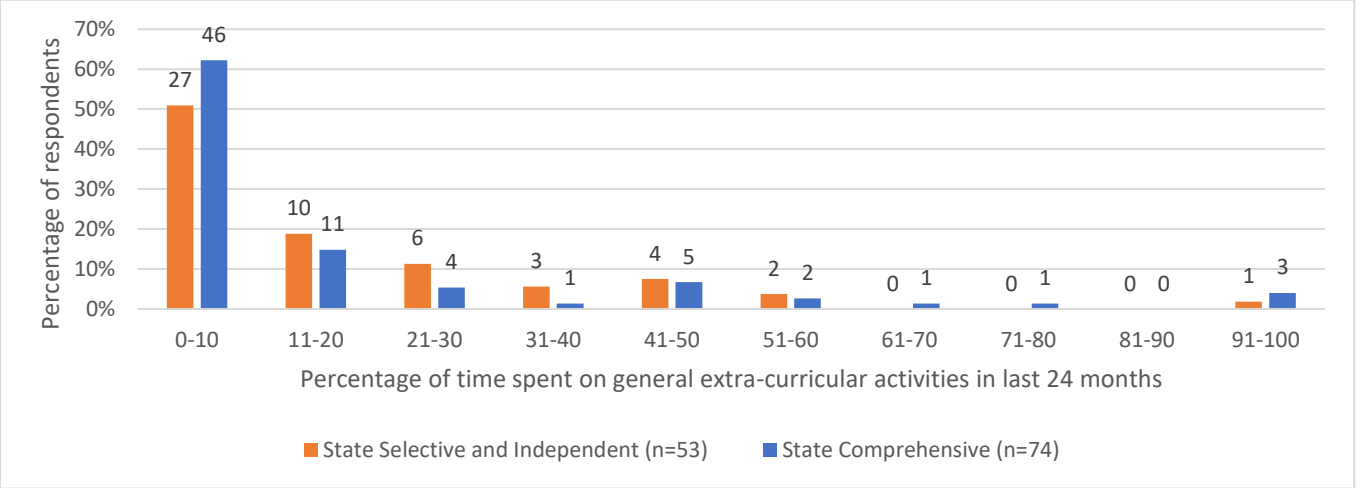


Figure 2.27: How much of your time over the past 24 months have you spent focusing on undertaking extra-curricular activities not specifically to support medical school applications?

Bar chart showing the percentage and number of responses within each category from Year 13 respondents to the question *'How much of your time over the past 24 months have you spent focusing on undertaking extra-curricular activities not specifically to support medical school applications?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 74). Orange bars depict responses from participants from the state selective and independent sectors (n = 53).

The questionnaire also posed some additional Likert Scale questions to Year 13 participants about their preparedness for medical school entrance tests and interviews now that they had sat the tests and potentially had/been invited to interviews. Figures 2.28 and 2.29 show

responses with regards to the BMAT and UCAT entrance tests. The entrance tests were broken down into two specific questions here and elsewhere, because specific issues were raised about them individually in both the one-to-one interviews and the focus groups (as described in section 2.3.3 and in section 2.3.8). It was felt that it would be useful to measure how they are individually perceived to test for any significant differences, either across the board or whether students from different educational backgrounds perceived either or both tests differently from each other.

Figure 2.28

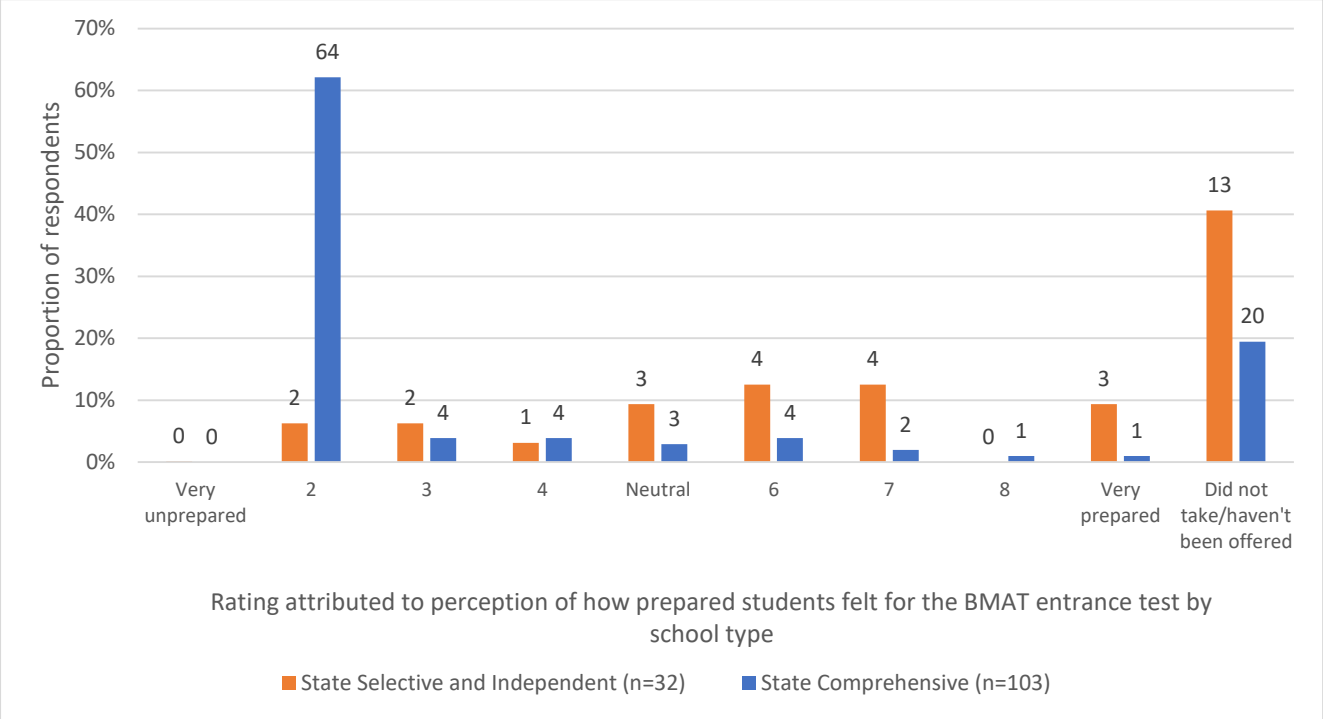


Figure 2.28: How prepared were you for the BMAT entrance test?

Bar chart showing the percentage and number of responses within each category from Year 13 respondents to the question *'How prepared were you for the BMAT entrance test?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 103). Orange bars depict responses from participants from the state selective and independent sectors (n = 32).

Figure 2.29

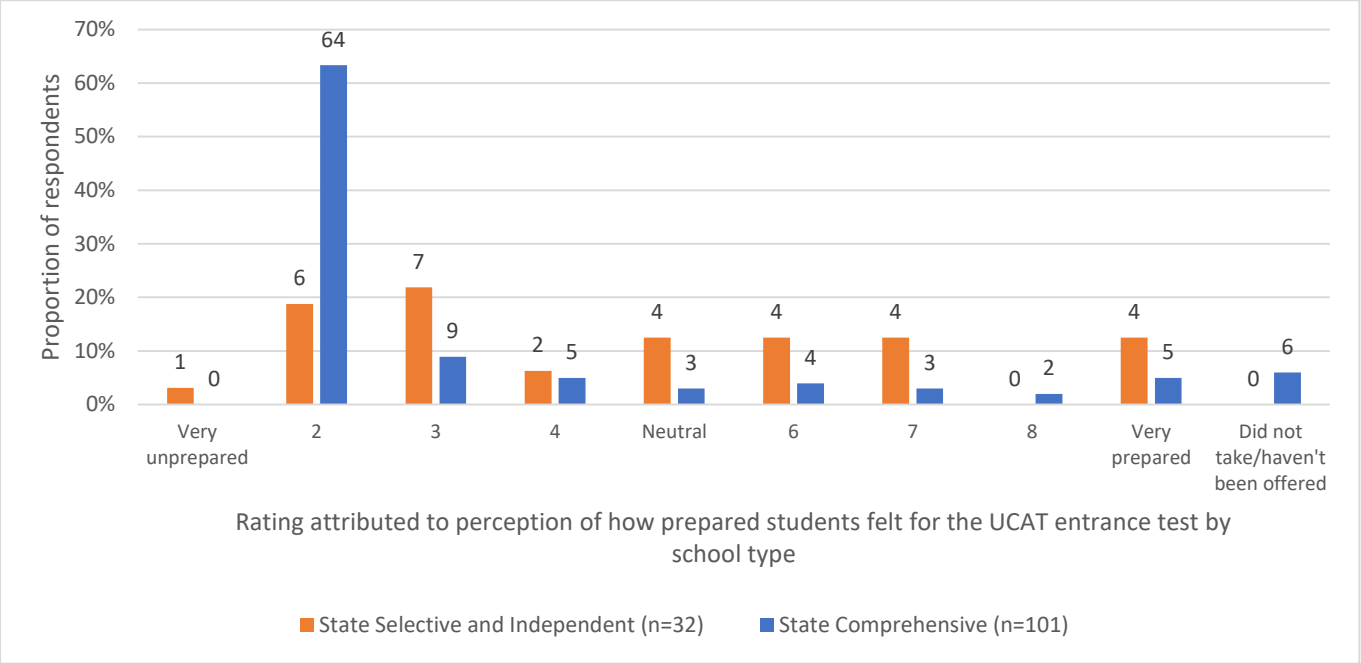


Figure 2.29: How prepared were you for the UCAT entrance test?

Bar chart showing the percentage and number of responses within each category from Year 13 respondents to the question *'How prepared were you for the UCAT entrance test?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 101). Orange bars depict responses from participants from the state selective and independent sectors (n = 32).

It is noticeable how much more unprepared respondents from the state comprehensive sector felt for both the BMAT and UCAT entrance tests, which perhaps supports discussions earlier in this chapter about accessing resources and support for the entrance tests being a major challenge for this group and is a cause for concern in terms of widening access to medical education. Although we cannot know from these responses how well the respondents that felt unprepared for the entrance tests actually performed in them, the perception of unpreparedness is in itself concerning and an indication that the students did not think that the tests went well.

In a related question, the same Year 13 respondents were asked how useful they felt any preparation materials they had used for the entrance exams were. Responses for both the BMAT and UCAT entrance tests are in figure 2.30 below and show significant contrasts between the state comprehensive sector and state selective and independent sector respondents. A majority of respondents from the state comprehensive sector did not feel their preparation materials had been useful and, particularly for the UCAT entrance test, a significantly higher proportion of state selective and independent sector respondents felt that the preparation materials they had used were very useful.

Figure 2.30

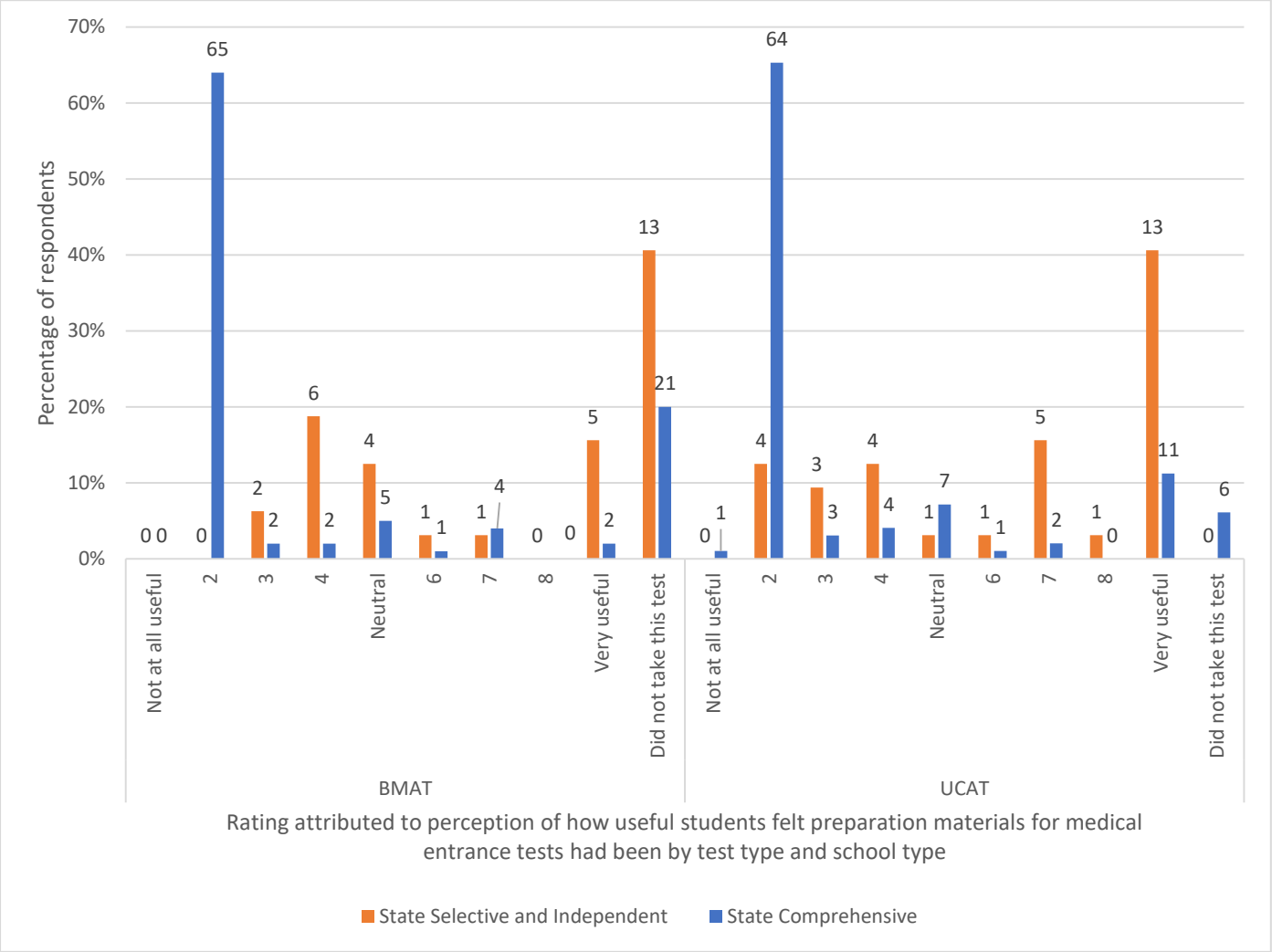


Figure 2.30: How useful were any preparation materials you used for the a) BMAT b) UCAT entrance test?
Bar chart showing the percentage and number of responses within each category from Year 13 respondents to the question *'How useful were any preparation materials you used for the a) BMAT b) UCAT entrance test?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (BMAT, n = 102; UCAT, n = 99). Orange bars depict responses from participants from the state selective and independent sectors (BMAT, n = 32; UCAT, n = 32).

Due to the scheduling of when the questionnaire was distributed, we were able to ask participants from Year 13 about their post-application experiences in terms of the selection and interview process undertaken by medical schools. Year 13 participants were asked whether they had attended or been invited to interview as part of the selection process. 72% of all the Year 13 state selective and independent sector participants attended (or were scheduled to attend) at least one interview compared to 58.4% of all the Year 13 state comprehensive sector participants. These questionnaire participants were then asked how prepared they felt for their interviews. Figure 2.31 shows responses to a Likert Scale question about preparedness for a panel interview for medicine and figure 2.32 shows

responses to a Likert Scale question about preparedness for a MMI interview for medicine. For those that had attended or were due to attend an interview, a follow up question asked how they had prepared/were preparing for it, responses to which can be found in figure 2.33.

Figure 2.31

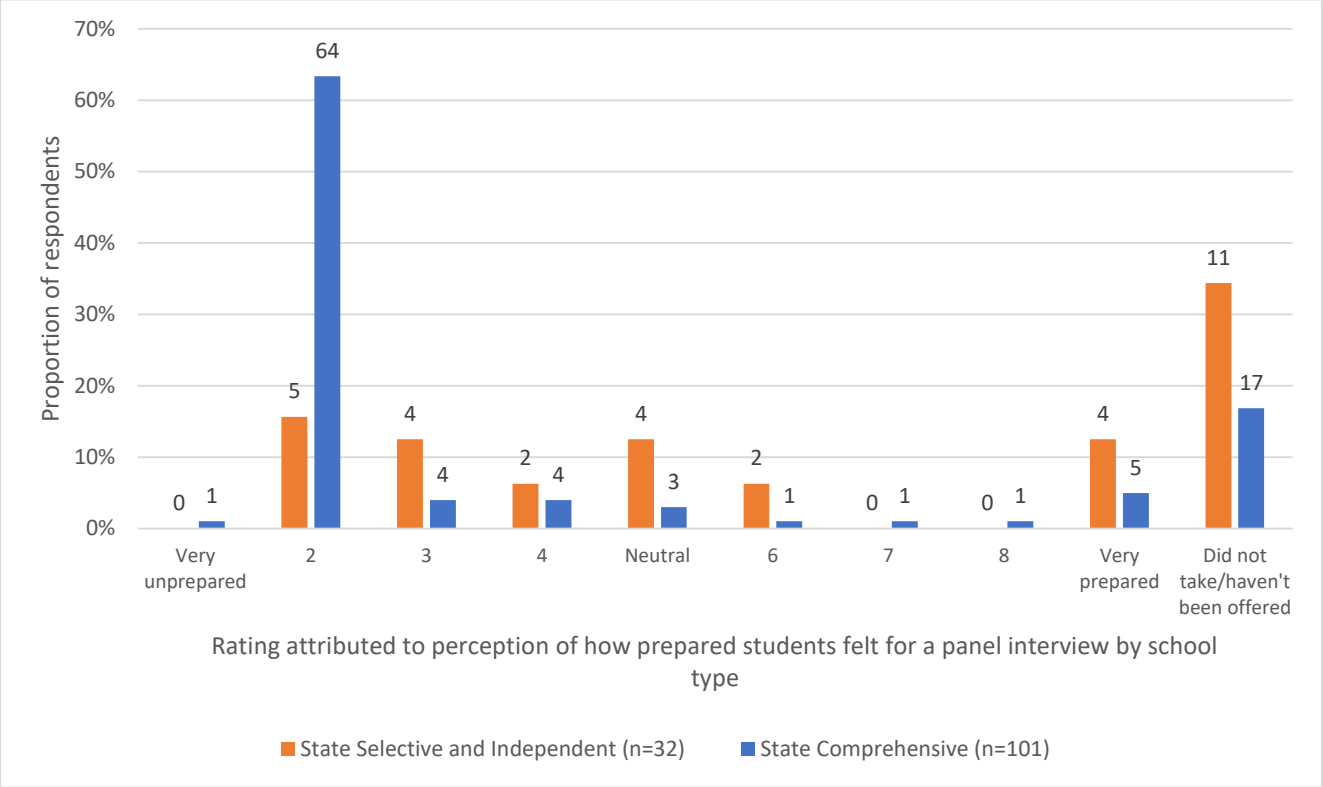


Figure 2.31: How prepared are you for a panel interview for medicine?

Bar chart showing the percentage and number of responses within each category from Year 13 respondents to the question *'How prepared are you for a panel interview for medicine?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 101). Orange bars depict responses from participants from the state selective and independent sectors (n = 32).

Figure 2.32

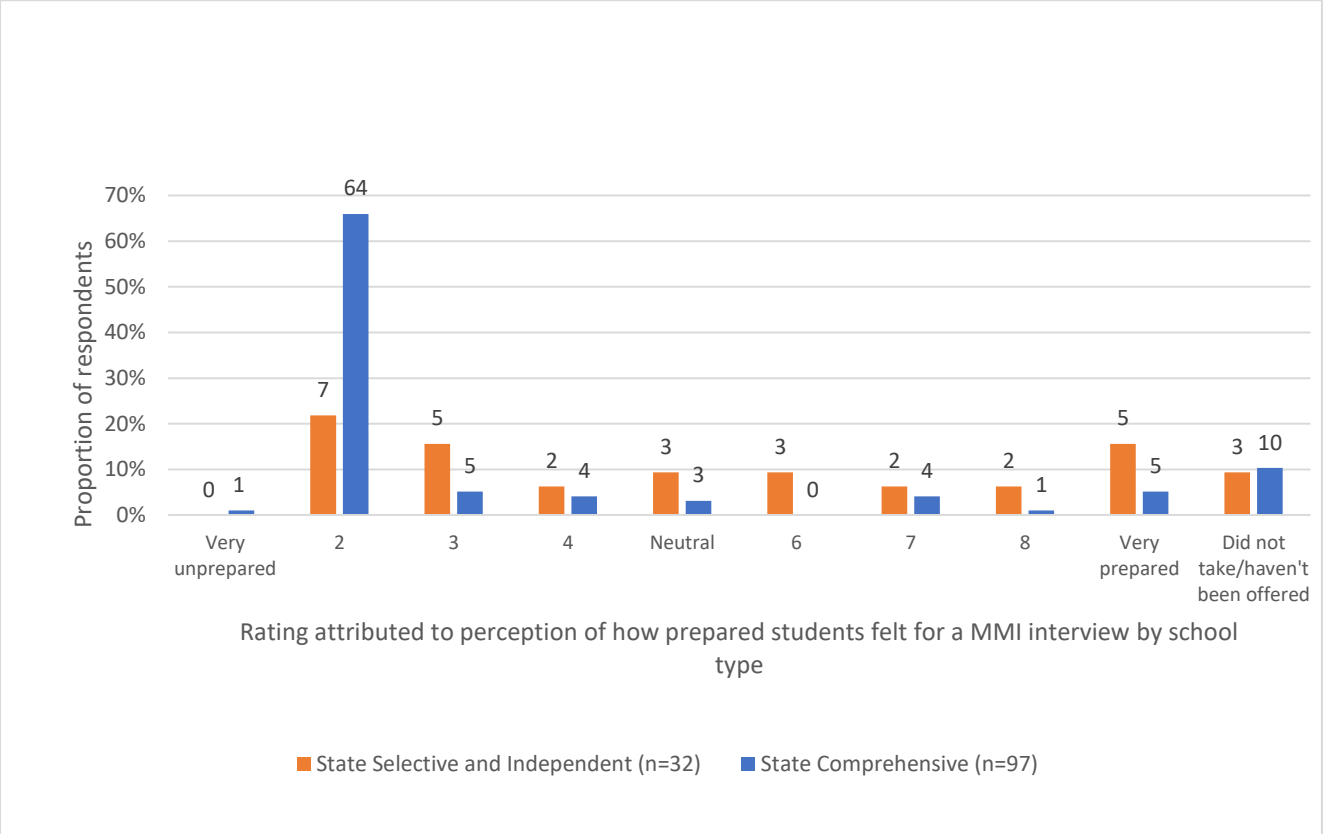


Figure 2.32: How prepared are you for a MMI interview for medicine?

Bar chart showing the percentage and number of responses within each category from Year 13 respondents to the question *'How prepared are you for a MMI interview for medicine?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 97). Orange bars depict responses from participants from the state selective and independent sectors (n = 32).

Figure 2.33

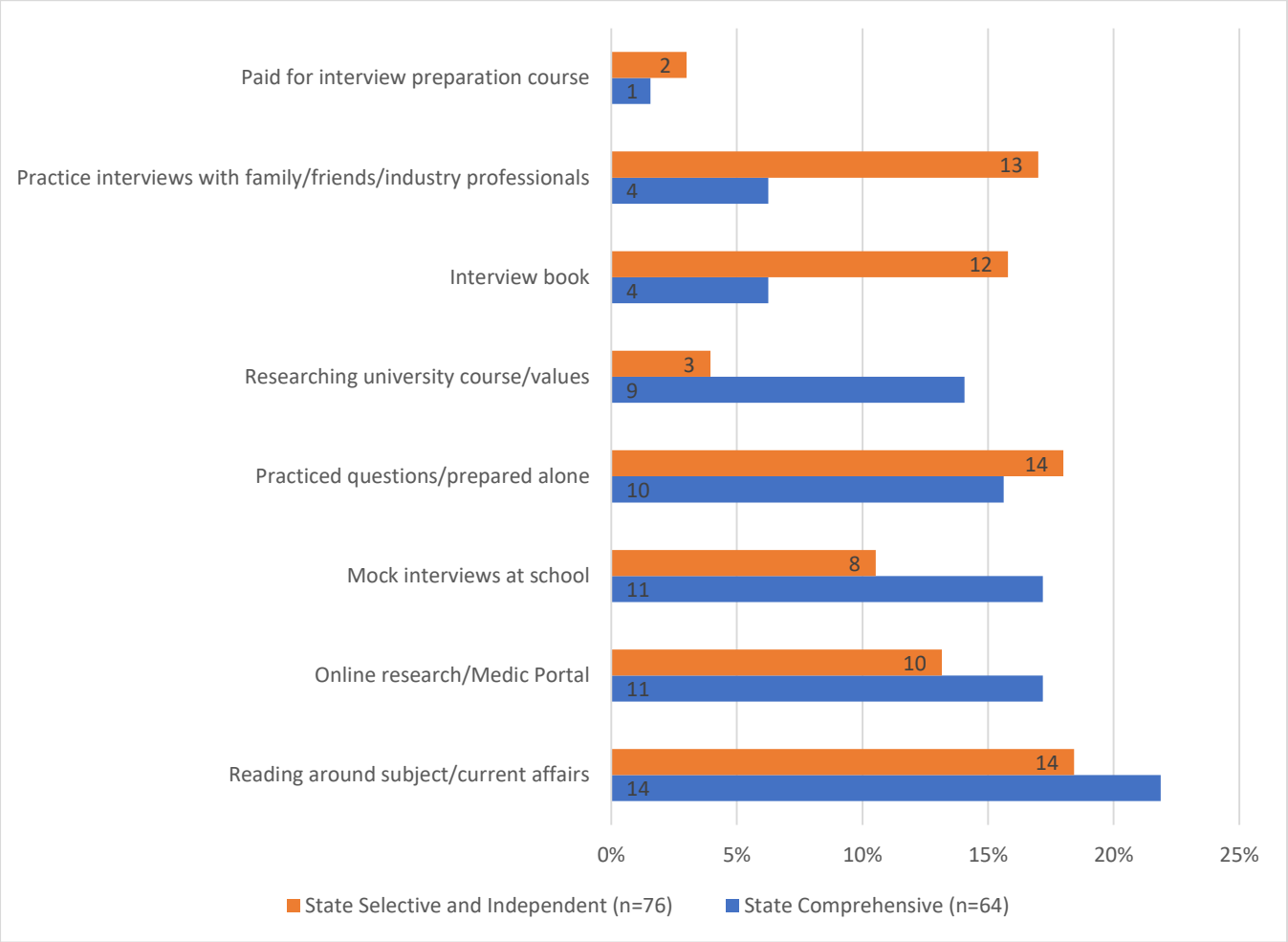


Figure 2.33: If you have had an interview for any of your university choices, how did you prepare?
Bar chart showing the percentage and number of responses within each category from Year 13 respondents to the question *'If you have had an interview for any of your university choices, how did you prepare?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 64). Orange bars depict responses from participants from the state selective and independent sectors (n = 76). Where responses made up a fractional margin of the overall results these were grouped together under an "other" category and were only included in the final analysis where helpful to do so.

It is interesting to note that, despite the much larger number of participants from the state comprehensive sector to the questionnaire overall, for the first time, figure 2.33 received more responses from the state selective and independent sector than from the state comprehensive sector. Whilst this corresponds with more respondents from the state selective and independent sector receiving interview invitations, it is also important to consider that this may also add some level of bias to the responses given.

As with the entrance tests, once again state comprehensive sector respondents in figures 2.31 and 2.32 felt considerably less prepared for panel or MMI interviews than their peers from the state selective and independent sector. When you consider this alongside figure

2.33 where respondents indicated how they had prepared for their interviews (the question was framed as a free text question without options to select from), there are some interesting observations to be made.

Looking at the responses in figure 2.33 in greater detail, in preparation for interview, respondents from all sectors were most likely to read around the subject and get up to date with the latest findings/news in the field. Online research and, once again, the use of the *Medic Portal* website were also popular options for preparation. A notable proportion of respondents from both sectors also prepared by themselves by rehearsing responses to questions, although only a very small number said that this was their only form of preparation, suggesting they may have used this to build upon their other forms of preparation.

The rest of the categories in figure 2.33 show considerable differences between the proportions of state comprehensive sector and state selective and independent sector respondents choosing them as preparation methods.

Somewhat interestingly, state comprehensive sector respondents were proportionally more likely (17% compared to 13% of state selective and independent sector respondents) to get (or, at least, mention getting) support from their school in the form of mock interviews. The type of mock interview support cannot be elicited from the responses given so it is unclear whether schools offered subject-specific mock interviews or more generic ones. However medical selection interviews were also discussed in the focus groups and one-to-one interviews and, as highlighted by a quote earlier in this chapter when discussing interviews as a challenging aspect of the application process for medicine, students from the state selective sector suggested that, whilst they did receive mock interview support, it was often too generic compared to the types of questions asked in an interview for medicine and so was not very helpful. Interview preparation in the state selective and independent sectors appeared to be more prevalent and sophisticated and there appears to be an assured confidence that the interview process will not present too much of a challenge.

"At the medical Oxbridge community we did interviews…with different teachers and they asked us some common questions that come up [for medicine]"

"I think the grades for me might (be challenging). Interview I will be all right"

Quotes from focus group participants from the state selective and independent sectors, regarding school support with preparation with medical school interviews.

State comprehensive sector respondents appear to be focused more on interview content than technique and were notably more likely (14% of responses compared to 4% of state

selective and independent sector responses) to prepare by looking at university websites to familiarise themselves with core values and try to find out more about the course structure etc. This can be useful preparation in helping to explain why you want to go to that medical school in particular. On the other hand, state selective and independent sector respondents appear to be conscious of also focusing on interview technique and were more likely (16% compared to 6% of responses from the state comprehensive sector) to purchase books that provide support with interview technique, with the same proportions also using their non-school networks for interview practice. They were also marginally more likely to pay to attend courses for interview preparation.

"Bought a few books giving guidance on the sorts of things to identify in the questions interviewers are asking, understand the skills they are testing….had a couple of mock interviews with friends at medical school"

"….bought some books on interview prep with lots of ethical scenarios, that was useful"

"I went on an interview course to learn more about MMI interviews"

Quotes from respondents in Year 13 state selective and independent sector schools to the question 'If you have had an interview for any of your university choices, how did you prepare?' in the questionnaire.

Having the means to pay for resources appears to be weighted towards respondents from the state selective and independent sector. Although inferences about the actual value of paid-for resources cannot be made, the perceived value can have an impact on how students feel they have performed and their experience of the interview process. As part of the same set of questions on medical school interviews, respondents who had already had an interview were asked about their experience of the process. This wasn't directly related to interview outcomes, just the experience of the interview itself. Figure 2.34 shows that respondents' experiences fell into three categories: positive, negative, or that the preparation was stressful.

Figure 2.34

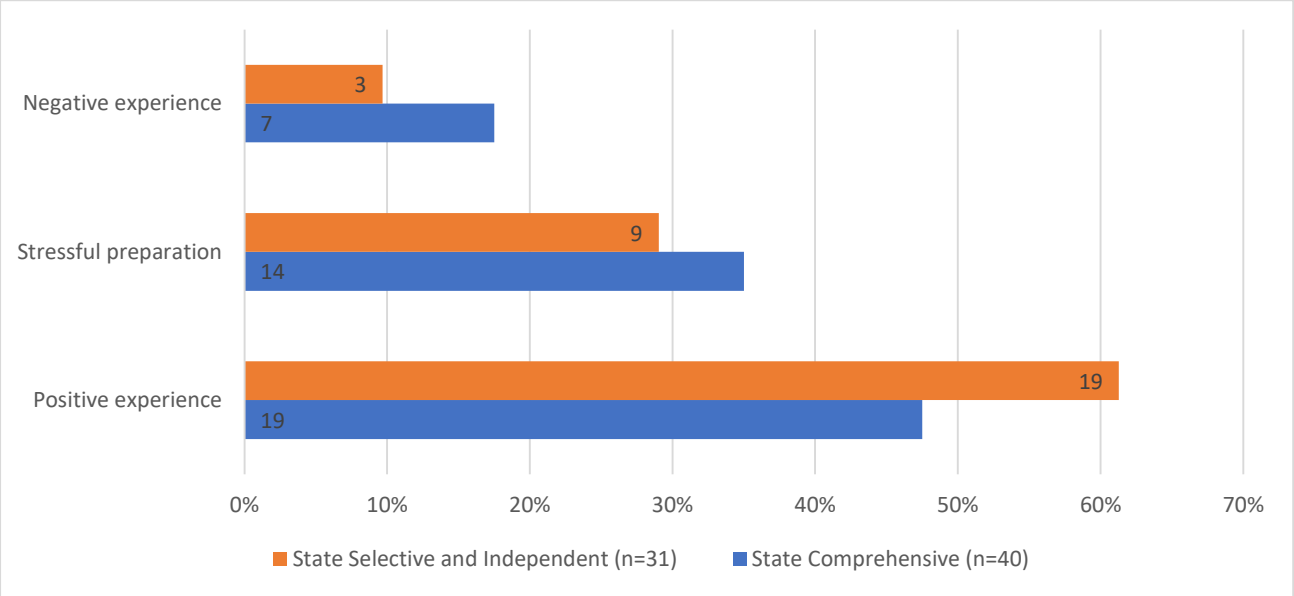


Figure 2.34: If you have had an interview for any of your university choices, how was that experience?
Bar chart showing the percentage and number of responses within each category from Year 13 respondents to the question *'If you have had an interview for any of your university choices, how was that experience?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 40). Orange bars depict responses from participants from the state selective and independent sectors (n = 31).

Respondents from both sectors found the preparation for interviews similarly stressful. However, proportionally more respondents from the state comprehensive sector reported the interview experience as negative, whereas a higher proportion of respondents from the state selective and independent sector stated that their interview experiences had been positive. A number of respondents also talked about having contrasting interview experiences at different universities, which then shaped how they felt about that institution/type of interview.

"Daunting. Wasn't prepared for the types of questions they asked"

"It was stressful but quite enjoyable once at interview, as everyone was in the same boat and it was useful to be able to talk to people who were undergoing the same process….I think the MMI format was much better than a panel would have been and the interviewers were all helpful and friendly"

"MMI was extremely stressful. The interviewers seemed as though they wanted to be anywhere else and constantly tried to catch you out! Many people came away in tears. However my other one included team activities and practicals which were extremely fun and enjoyable. Total opposites"

Quotes from respondents in Year 13 state comprehensive sector schools to the question 'If you have had an interview for any of your university choices, how was that experience?' in the questionnaire.

"I enjoyed the experience when there but found build up stressful"
"I thought it was nerve-wracking, but it is great experience for the future and it was enjoyable in the end"

"The interview experiences varied a lot but overall I think it was a good learning experience. I had better experiences at the universities which were more efficient and did not keep you waiting for hours"

Quotes from respondents in Year 13 state selective and independent sector schools to the question 'If you have had an interview for any of your university choices, how was that experience?' in the questionnaire.

How much of the interview experience is weighted by personal preparedness or self-confidence versus access to support to best prepare you and/or improve your self-confidence is difficult to establish from the questionnaire, though the notable difference in interview experiences between the two sectors is something that future studies may wish to further investigate.

However, the perception of preparedness – or the lack of access to resources to prepare as well as they would have liked, is something that came across strongly in the focus groups, where participants from the state comprehensive sector felt that they were at a disadvantage as they were unable to pay to attend courses or to access resources that would support their medical school application process, including support with entrance exams and interviews.

"People are…dissuaded from medicine when they see the cost of like trying to prepare for it, because I come from a low income background so I don't want to pressure my parents to help me and support me like that…A day for like some pseudo work experience was £120. Then there's also a UKCAT course, I think they charge you £300 for day. We can't afford that"

Quotes from a focus group participant from the state comprehensive sector, regarding school support on the university admissions and application process.

"My [former state comprehensive] school was, it was definitely not the same opportunities at all. Like I said, they didn't even consider telling us that university application was a thing, they kind of swept that under…university wasn't really an option they liked to open up. So, they focus so much on apprenticeships and colleges."

Quote from a focus group participant from the state selective sector, regarding school support on the university admissions and application process.

There is no strong evidence available that, particularly for entrance exams, paid-for resources/support puts applicants at an advantage. However, the perception that it does and the resulting impact on confidence (for those in receipt of it as well as those unable to access it) is difficult to measure in terms of how it then affects performance. Applicants appear to have a perception that access to additional resources does put you at an advantage. Several students from the focus groups made comments displaying a weariness and level of distrust in what applicants are told compared to what they feel they see happening/statistics are showing about the medical school selection process.

"You can't compare someone that went to a private school and got all the small classes, extra tutoring [for entrance exams and interviews] and all these extra placements with members of their family, to someone who just went to a normal sixth-form college. They're

trying to do the same thing but in a way they're going to get there faster because they're getting more ahead. So you can't really use the same grade boundaries to compare them."

"Not everyone has the same opportunities. Like if we got the chance to go to a private school and have small class and extra tutoring and training for all the tests and stuff, we'd be at the level they are. But we don't have that opportunities so I don't think it's fair to use the [same] grade [boundaries]."

"They [medical schools] say that you don't have to have hospital work experience to get a place [at medical school] but how come all the places go to the people who have got it just by going to work with their Dad or paying to work at overseas hospitals? Obviously you do need it."

Quotes from focus group participants from the state comprehensive sector, regarding their perceptions on the fairness and transparency of the selection process for medical school.

Generally speaking, figure 2.33 showed that a higher proportion of respondents from the state comprehensive sector had prepared by studying content and the context of the medical school where they were having the interview, which is usually what is recommended for any type of interview. However, significantly higher proportions of state selective and independent sector respondents compared to state comprehensive sector respondents had practiced interviews outside of the usual mock interview provision within their school and sourced specific interview technique books. This suggests that state selective and independent sector respondents may have felt it would be most valuable to focus on interview technique, and that they had the means to do so. Indeed, based on responses to earlier questions, they may have had friends and family with relevant clinical experience to help them. If state selective and independent sector respondents focused on practicing interview technique and felt more prepared and confident as a result, it is likely that this had a positive impact on how they performed in the interviews and their interview outcomes. Whilst state comprehensive sector students may be well versed in the subject matter, if they have not had very much exposure to an interview environment, this is likely to impact their confidence and performance in interview situations. Certainly from my experience as an observer of medical school interviews (and as an interviewer not specifically for medicine), students from the state selective and independent sector (particularly those from the independent sector) tend to be very poised, articulate and self-confident in comparison to students from the state comprehensive sector. This can have an impact on how the interview panel respond to and question candidates and whether the interview experience is seen as positive or negative by all involved parties.

2.3.5 Preparing for transition to university

This section focuses on the transitional aspects of starting at university. Questionnaire participants from all year groups who had indicated a preference for university as their preferred post-18 option were also asked to consider how prepared they felt to start at university. This set of questions were asking them to consider beyond what support they felt they needed to successfully apply to university and instead to consider what help they may need to successfully transition into a university environment. Figure B22 in Appendix B shows broadly similar responses from all year groups across both sectors to a question asking how prepared they felt to start at university, with a majority of respondents indicating that they either were not ready or were not sure that they were ready yet. Respondents that indicated that they did not feel prepared or were not sure that they felt prepared, were asked to comment on what might help them to improve their level of preparedness. This was an opportunity to gauge how much consideration respondents had given to the more logistical aspects of going to university such as student finance and finding somewhere to live as well as the wider university experience such as belongingness, adapting to new styles of teaching and learning, making friends, going out on placements etc. Figures 2.35-2.37 show what Year 11-13 respondents felt may support their preparation for university life.

Figure 2.35

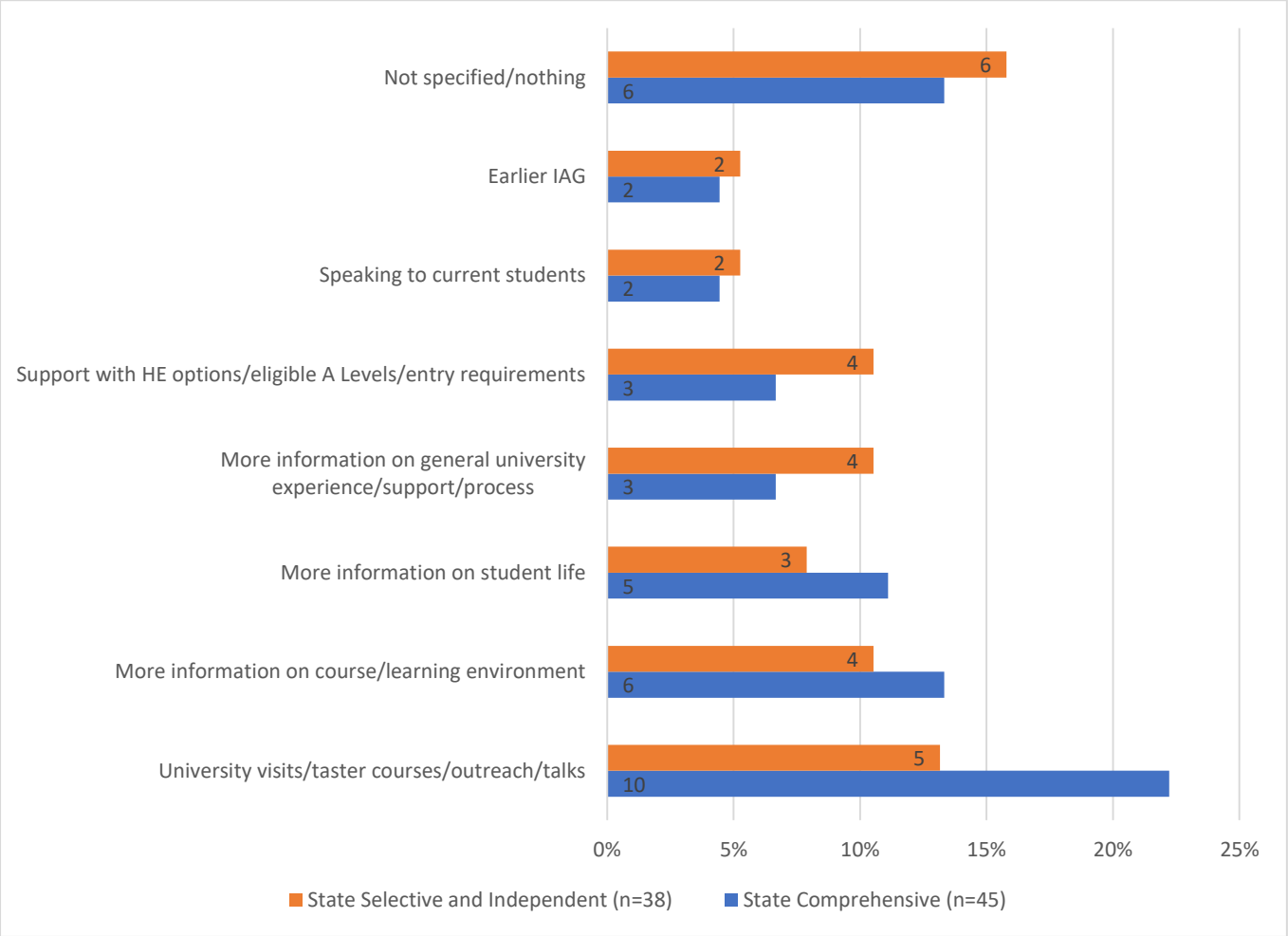


Figure 2.35: What would help you feel more prepared?

Bar chart showing the percentage and number of responses within each category from Year 11 respondents to the question *'What would help you feel more prepared?'* for those who responded that they did not or weren't sure that they felt prepared to start university in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 45). Orange bars depict responses from participants from the state selective and independent sectors (n = 38). Where responses made up a fractional margin of the overall results these were grouped together under an "other" category and were only included in the final analysis where helpful to do so.

Figure 2.36

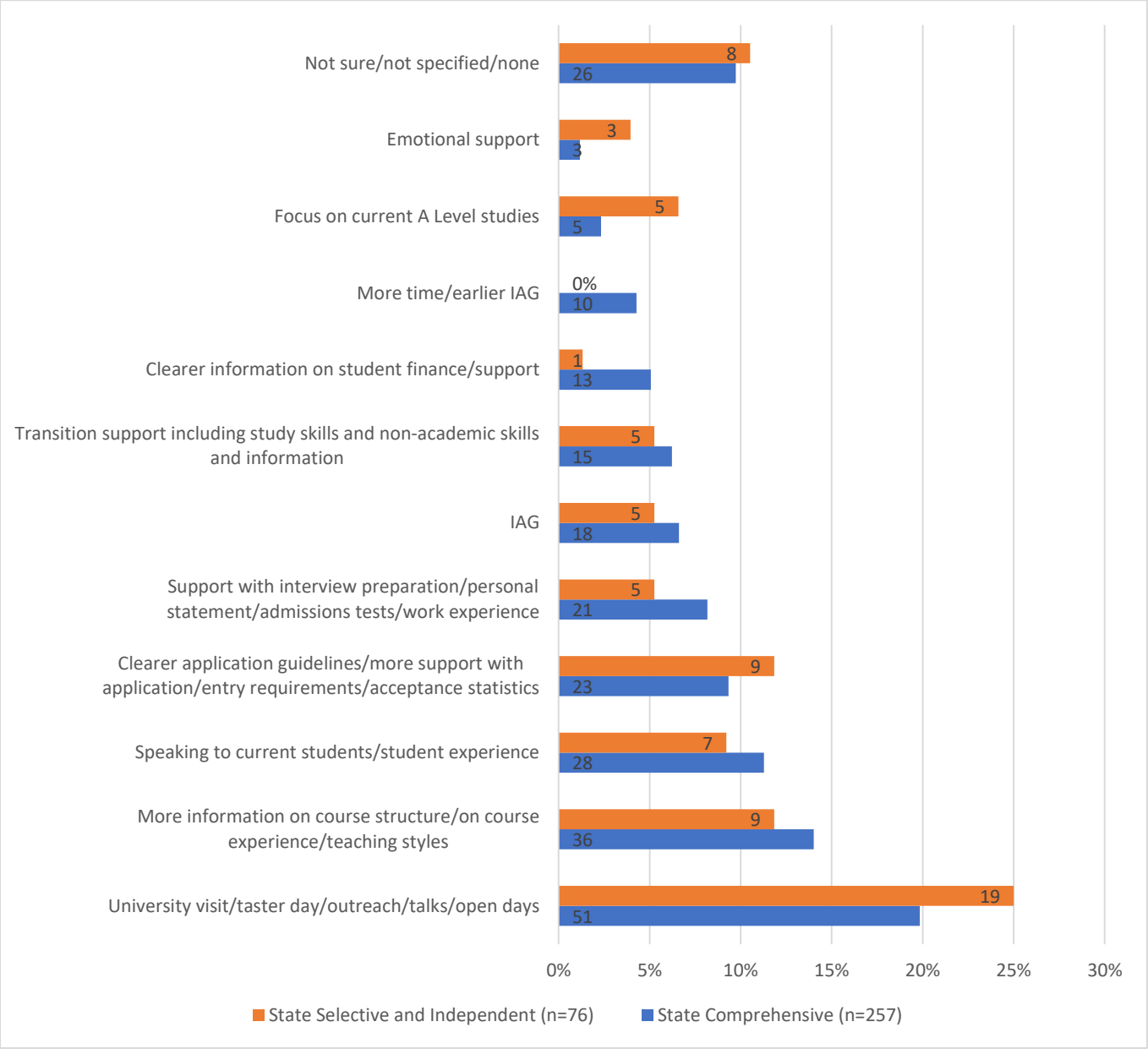


Figure 2.36: What would help you feel more prepared?

Bar chart showing the percentage and number of responses within each category from Year 12 respondents to the question *'What would help you feel more prepared?'* for those who responded that they did not or weren't sure that they felt prepared to start university in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 257). Orange bars depict responses from participants from the state selective and independent sectors (n = 76). Where responses made up a fractional margin of the overall results these were grouped together under an "other" category and were only included in the final analysis where helpful to do so.

Figure 2.37

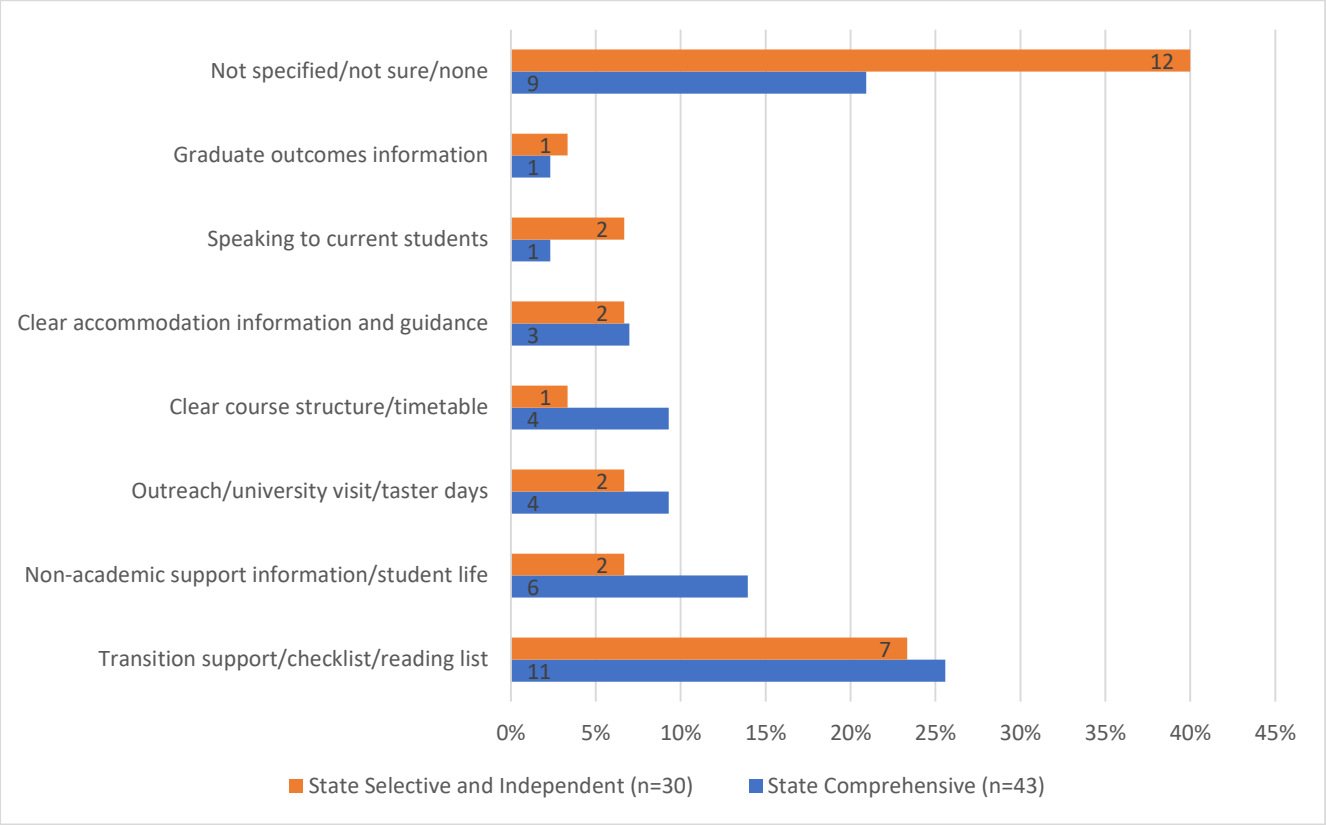


Figure 2.37: What would help you feel more prepared?

Bar chart showing the percentage and number of responses within each category from Year 13 respondents to the question *'What would help you feel more prepared?'* for those who responded that they did not or weren't sure that they felt prepared to start university in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 43). Orange bars depict responses from participants from the state selective and independent sectors (n = 30). Where responses made up a fractional margin of the overall results these were grouped together under an "other" category and were only included in the final analysis where helpful to do so.

Figures 2.35 and 2.36 show that, for those earlier on in the student lifecycle, what respondents from both the state comprehensive and the state selective and independent sectors felt would be helpful is more access to universities and/or their staff and students. Respondents want to be able to experience university campuses and find out more about what student life is actually like. Given the reduced opportunities for physically visiting universities during the COVID pandemic, this issue is likely to have been exacerbated for some subsequent cohorts.

Respondents from all sectors felt frustrated at the lack of accessible opportunities to visit university campuses and get a feel for student life and/or specific courses. Many respondents from both sectors mentioned their desire for more opportunities outside of Open Days to access the university, such as subject taster days and opportunities to better

understand the student residential experience. They also wanted to have more Open Day opportunities as they felt they were currently limited and not always at the right time for students. Exposure to the university campus could also prove to be an important aspect for students from a critical realist perspective in terms of shifting their understanding from the perceived empirical domain towards the actual domain of experience.

State comprehensive sector respondents in particular talked about being able to access outreach activities and Summer Schools. This corresponds with points raised in the focus groups discussed earlier in this chapter, where participants talked about wanting to engage with universities through outreach programmes and being frustrated that opportunities were not available to them in the same way as similar peers.

These opportunities were also mentioned by state selective and independent sector respondents, including in focus groups. They shared some of the frustrations of access to such courses but they were more forgiving about lack of eligibility to attend WP-focused programmes and events. Their frustrations lay in the lack of opportunities available to pay to attend events or programmes run by universities.

"…especially for Sciences and Medicine [outreach programmes], which I know is because they [state comprehensive students] get less of the spoon-feeding than we do, but at the same time they'll then have a taster course, which I won't have had. Even if I've spoken to someone who's done Medicine, it doesn't make a difference; I still haven't had a taster course that they've then had."

"In terms of their [medicals schools/universities] outreach in summer schools applying for universities they give you a specific set. So they say that you can only apply for this if you come to a non-selective school. And when I tried to apply for one they said you can't because it's a selective school. I still need help…so then I don't understand how could I not get in."

"[There's] a lot of criteria to meet for that; you have to... there's like a whole list of things that you have to be. You have like to be eligible for free school meals and all of this. And which I know, obviously, they're giving you a free taster course, but [offer] even more ones that are paid then, there are only a couple of ones which are paid which are also ridiculously expensive."

Quotes from focus group participants from the state selective and independent sectors, regarding school support on the university admissions and application process.

Many of the Year 11 responses in figure 2.35 reflect what you might expect from students at the end of key stage 4. They want support to better understand what university actually entails, the vast array of options open to them within Higher Education and the entry requirements for certain subjects/professions to enhance their key stage 5 decision making. State comprehensive sector respondents were slightly more likely to say they need more

support with understanding what university is, how it differs from the school environment and what it can offer, whereas state selective and independent sector respondents were slightly more likely to focus on the process of university such as entry requirements and how to apply. This aligns with discussions earlier in this chapter where the results shown in figure 2.1 suggested that Year 11 respondents from the state selective and independent sector showed a greater awareness of the processes involved in accessing a university education and wanted more information about the practical steps involved and not just about the concept of university itself.

For Year 12 respondents, figure 2.36 shows that, whilst clarity regarding course structure, the student experience and application support are still the dominant factors for respondents in terms of preparedness, they were also aware of some of the more practical elements involved in transitioning to university. Respondents from both sectors indicated that support with transition to university would be helpful.

""Real life lessons" not just to prepare me for university but also for independent living"

"How to adapt to university life. What I should know or skills I should have before living at university"

"How and what to read ahead in the summer before starting a course like medicine. Also, universities could inform us about what the best study techniques are to successfully learn so much information such as that in medicine"

"I would like further information about uni life and fees and also how I can balance my finances and find a way to be less reliant on student loans and be more independent to better suit me"

"They should give us some tips and advice on how to settle in properly, or how to prepare etc."

"More information about life during university, not just about the course but also about living conditions, costs, social life and living on your own for the first time"

"Showing me what life at uni will be like, how to manage living away from home, how to find a job to support myself, how to manage my expenses"

"Universities need to show a typical timetable for a student doing a certain course. The way lectures and seminars etc. are structured. The kind of textbooks provided"

"It's more just the dramatic change which comes with university which I feel slightly unprepared for"

"Learning how to cook, manage money and work more independently"

Quotes from respondents in Year 12 state comprehensive sector and state selective and independent sector schools to the question 'What would help you feel more prepared?' for those who responded that they did not or weren't sure that they felt prepared to start university in the questionnaire.

Respondents, particularly from the state comprehensive sector, had concerns about student finance and ensuring that, not only was medical school achievable, but also that it was affordable.

"More information about money needed for it and the different available options (scholarships)"
"I only feel unprepared because I can't financially support myself yet and my family situation is unpredictable"

"More talks focused on student financing"
"A more detailed look at what university life is like, help with finances, accommodation etc."
Quotes from respondents in Year 12 state comprehensive sector schools to the question 'What would help you feel more prepared?' for those who responded that they did not or weren't sure that they felt prepared to start university in the questionnaire.

Respondents had a genuine concern about the cost of going to university and what support was available with this. This is also something that came across in the focus groups, particularly with participants from the state comprehensive sector. They were especially concerned about the affordability for 5-6 years of medical school and that there was unlikely to be enough financial support or flexibility in timetabling at medical school to be able to seek a part-time job. Since the questionnaire was closed to further submissions, there has been a global pandemic and a cost of living crisis, both of which will have exacerbated these financial concerns. From my own work with students in my professional role, it is increasingly common for students to not only work during their studies, but also to attend campus and/or lectures less frequently in order to work or save money. From my experience it is students from historically under-represented backgrounds that are most likely to be affected by the compounding economic stressors of the pandemic and cost of living crises which poses a risk to equitable access and diversity in medical education.

"Financial issues are quite… because you know you're looking at… you have to work out the cost of living and the accommodation and also the fees per year, and for 5 years for medicine, you're just like oh my God, that's a lot of money! So it's hard and scary."

"[Student's name] been offered a bursary for uni because her mum earns a certain amount, but then I wouldn't be eligible because my mum earns a few more thousand than [student's] mum, and I don't think that's fair… it sounds like me being selfish, but I don't think that's fair on people like me, because how am I meant to get the extra money? My mum is not going to give me the money, how am I meant to survive?"
Quotes from focus group participants from the state comprehensive sector, regarding financial aspects of going to medical school.

For many respondents, more explicit information about on-course costs, opportunities for bursaries and scholarships and example timetables so they can decide whether part-time work is a possible option, are things that would help them feel more prepared and less

worried and/or distracted about whether they will be able to afford to take up a place a medical school.

Interestingly, state selective and independent sector respondents were proportionally more likely to suggest that having some assurance that they will be able to complete their A-Levels to the standard required is what they needed to feel more prepared. Respondents mentioned waiting to complete their mocks and/or AS-Levels as factors that made them feel underprepared at this stage. The questionnaire was undertaken at a time when AS-Levels as a standard qualification for students during their A-Level studies were just starting to be phased out and so many students still undertook these. As far fewer students now undertake AS-Levels, it would be helpful to measure the impact that this is having on students' preparedness and whether, in turn, this is impacting their outcomes and ability to engage with the extra-curricular aspects of the medical school application process.

State selective and independent sector respondents were also proportionally more likely to suggest that they needed emotional support to better prepare for university. Responses mentioned feeling intimidated by the prospect of going to university and needing reassurance about their abilities and/or that their university experience will be a positive one. These are areas to further build upon in terms of the mental wellbeing aspects discussed earlier in this chapter.

Figure 2.37 shows what Year 13 respondents felt would help them feel more prepared. Whilst there are commonalities with responses in figures 2.35 and 2.36, there is a clear shift in the thought process here to the transitional aspects of moving into a university environment and wanting to find out exactly what life is like at individual universities, what living costs will be like and how they will be supported to successfully transition into and succeed on their course.

"A breakdown of what is expected to happen over the course of the first year would be helpful"
"Info on how to adjust to uni life"

"Maybe give students an idea of how the first few weeks will go early [before they start their course]"

"Perhaps Universities could provide a list of books to read to prepare for the start of the chosen course"

"Universities providing induction days"

"Give me retrospective evidence and say where former graduates went"

"More detailed experiences [of] first year e.g. accommodations, work opportunities, part time jobs etc."

Quotes from respondents in Year 13 state comprehensive sector schools to the question 'What would help you feel more prepared?' for those who responded that they did not or weren't sure that they felt prepared to start university in the questionnaire.

One of the clearest messages from Year 13 students is that they aren't sure what would help them feel more prepared but they are feeling uneasy. This is important for universities to be aware of when considering how they develop resources to support the recruitment and admissions process. Students don't just need information about how to get into medical school and the course structure. They also need reassurance that there are mechanisms in place to support them to thrive once they are there.

Now that the application and selection process was largely complete, Year 13 respondents appeared to want more assurance and information on the transitional aspects of starting at university. For respondents who may hold multiple offers, they may be seeking this information to help them to make an informed decision about which medical schools to put down as their Firm and Insurance choices.

In terms of preparation for starting university, across all year groups it is apparent that respondents wanted more input from universities and some clarity of what to expect when they start their course. They also want to hear from current students first hand, not necessarily about the course but about their student experience and their advice and experiences of managing key stage 5 and all the extra-curricular aspects of the application process for medical school. Essentially, a role model who has succeeded in navigating the process of applying to medical school and is now a medical student may be a useful ambassador.

Once again, as mentioned when discussing the challenges in preparing for post-18 options earlier in this chapter, more information and clarity on the course structure came up across all year groups with participants discussing how difficult it was to know what medical schools to apply to when they had little to no experience of the different teaching styles and that example timetables with explanations were often not available.

"With Medicine as well there is like different types of teaching as well, there's like PBL or traditional based and you want to see them because you can read about them but if you go there you can actually see and experience for yourself which course is better."

Quote from a focus group participant from the state selective sector, regarding opportunities to understand teaching styles.

Being mentally prepared for the workload and for the first year more generally came across as important aspects for respondents, and it may be helpful for medical schools to look at what further information they may be able to provide in advance about the course without it becoming too overwhelming for students. This includes reviewing the timeliness of information and whether students may benefit from having some institution-specific information earlier than they currently access it.

2.3.6 Factors in choosing to pursue a medical education

The questionnaire was designed to target students who would, in terms of their chosen subjects, be eligible to apply to medicine (those who had chosen science A-Levels or were orientated towards that direction if yet to select their post-16 options) but may not necessarily have chosen to pursue medicine, either having actively not chosen it or not yet made a decision to do so. This design was purposeful as it allows the questionnaire scope to look at what the deciding factors were for students in deciding to pursue (or not pursue) a medical education.

Questionnaire participants were asked whether they were considering studying medicine as a future option. Those that responded positively to say that they definitely were considering studying medicine or that they potentially were, were then asked a follow up question about what attracts them towards studying medicine. The detailed responses can be found in Appendix B, figures B23-B25.

For the most part, respondents' reasons for wanting to pursue a career in medicine are consistent across each year group and in both the state comprehensive sector and the state selective and independent sector. Worthy of note, Year 11 respondents were the only year group to mention financial gain, by way of salary, as an attractive characteristic of the medical profession. The questionnaire was distributed at a time when protests by Junior Doctors were in their prominence and so it is possible that media reporting of the protests heightened awareness of the realities of the medical profession in terms of salary expectations.

None of the categories developed from responses to this question were especially surprising. People going into the medical profession generally want to do it because they want to help people and/or because it is a well-respected profession and a challenging career. The main point of interest in these responses comes from discussions around work experience in figures B24 and B25. A primary purpose of undertaking work experience in healthcare settings as part of the application process to medical school, is to be able to better understand the realities of the profession and help students to decide whether this

career path is suited to them. From a critical realism perspective, work experience should provide students with experience of the actual domain so they can develop their knowledge of the real rather than make judgements and decisions based on their perceptions. It is therefore of some concern that the proportion of responses citing positive work experience was so low across all sectors and particularly for respondents from the state comprehensive sector. It is not possible to ascertain whether responses citing positive work experience are low because other respondents had not been exposed to appropriate work experience opportunities, had had negative experiences during work experience, or simply felt other things had been a greater influence on their decision to pursue medical education. It is also worth considering that, for many applicants, they may have already decided that they would be applying for medical school and nothing would deter them. In this context, the process of doing work experience might be seen as a burden – something they "had" to do to get in – rather than as a positive experience that would aid their decision-making and understanding of the vocation. Regardless, these responses allow an opportunity to consider the role and impact of work experience and whether it is serving the purpose that medical schools intended. There are, of course, a number of reasons that work experience is expected, including providing a more realistic view of the medical profession and an understanding of what the challenges might be. Nevertheless, these findings do raise the question that if the influence of work experience is low, should it still be included as such a fundamental aspect of the medical school application process?

Responses from the focus groups and one-to-one interviews also mentioned work experience, largely discussing the challenges and burden of trying to source placements and the negativity they experienced from practitioners when they did secure work experience opportunities.

"I think work experience is a burden at this age. Employers don't want us."

"We appreciate it, we understand that if they did let us have work experience, they're taking time out to help us, but in the end, it's about the fact that universities expect us to have this when we find it difficult [to source]."

"I've got work experience lined up but I only found out very recently and I found it hard to find because a lot of the stuff you have to book a year in advance and you have to have interviews for it, which made it very hard to find and I feel like I started late which means I've missed out on opportunities."

"It's hard to find work experience. You're not really getting paid for it. It's good to do it because it's going to help you but finding it is [hard]...And especially because it's medicine, you can't be working with vulnerable people because you're not qualified enough so, they're going to find it like really hard for you to actually come in and see what they're doing, so you don't get to experience it properly."

Quotes from focus group participants from the state comprehensive sector, regarding work experience as part of the medical school application process.

"Actually the work experience I went to, and when I go to GP practices, they tell me not to do it. They say the NHS isn't great these days. You may as well become a banker."

"Yes, some of the doctors at my work placement they really tried to put me off of it because they obviously know… they told me how challenging it was, but just really prepares you for like the future instead of like worrying about it."

Quotes from focus group participants from the state selective sector, regarding work experience as part of the medical school application process.

For respondents who said they definitely were not considering studying medicine, the follow up question asked them what deterred them. Figures 2.38-2.40 show Year 11-Year 13 responses as to what deterred respondents away from studying medicine. The number of responses for each year group are considerably lower than for other questions, which limits how much can be gleaned from the results. Despite clarifying the participation eligibility criteria in the correspondence that went out to schools, the low number of responses for students who were not considering medicine is likely to be due to schools selecting those students who had shown an interest in medicine to participate in the survey or students deciding not to participate if they felt it wasn't relevant to them. This means that the responses may not be wholly representative of students who actively choose not to apply to medical school despite taking relevant subjects and should be treated with caution.

Figure 2.38

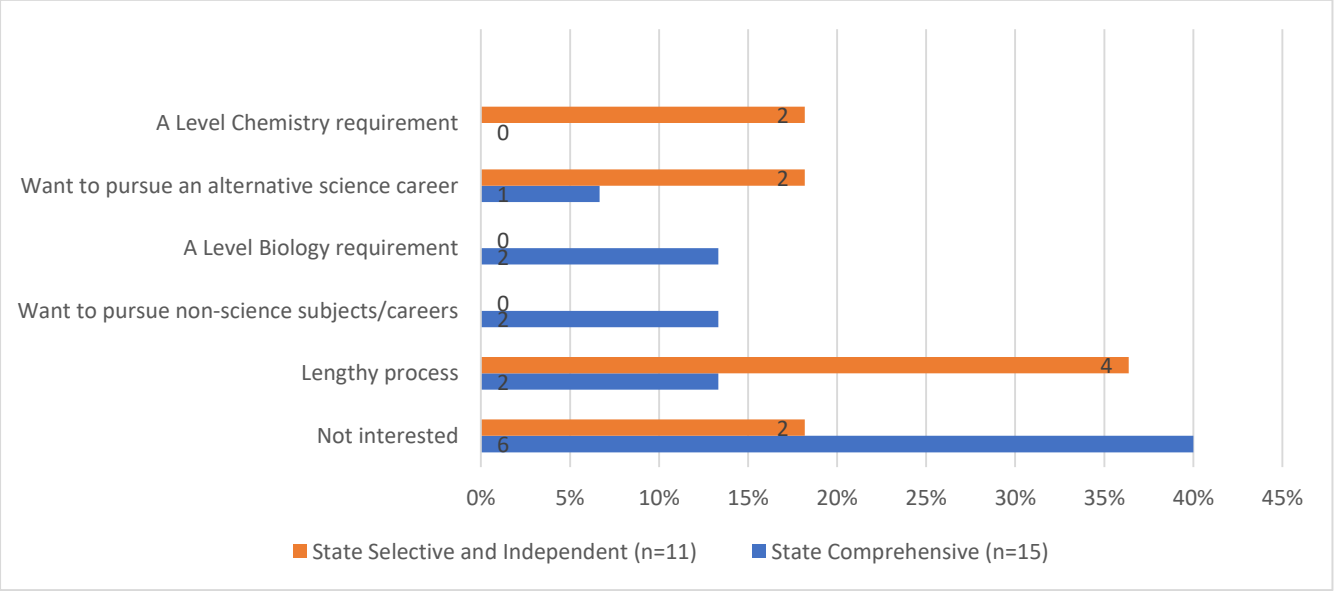


Figure 2.38: What deters you away from studying medicine?

Bar chart showing the percentage and number of responses within each category from Year 11 respondents to the question *'What deters you away from studying medicine?'* for those who responded that they were not considering medicine as a future option in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 15). Orange bars depict responses from participants from the state selective and independent sectors (n = 11). Where responses made up a fractional margin of the overall results these were grouped together under an "other" category and were only included in the final analysis where helpful to do so.

Figure 2.39

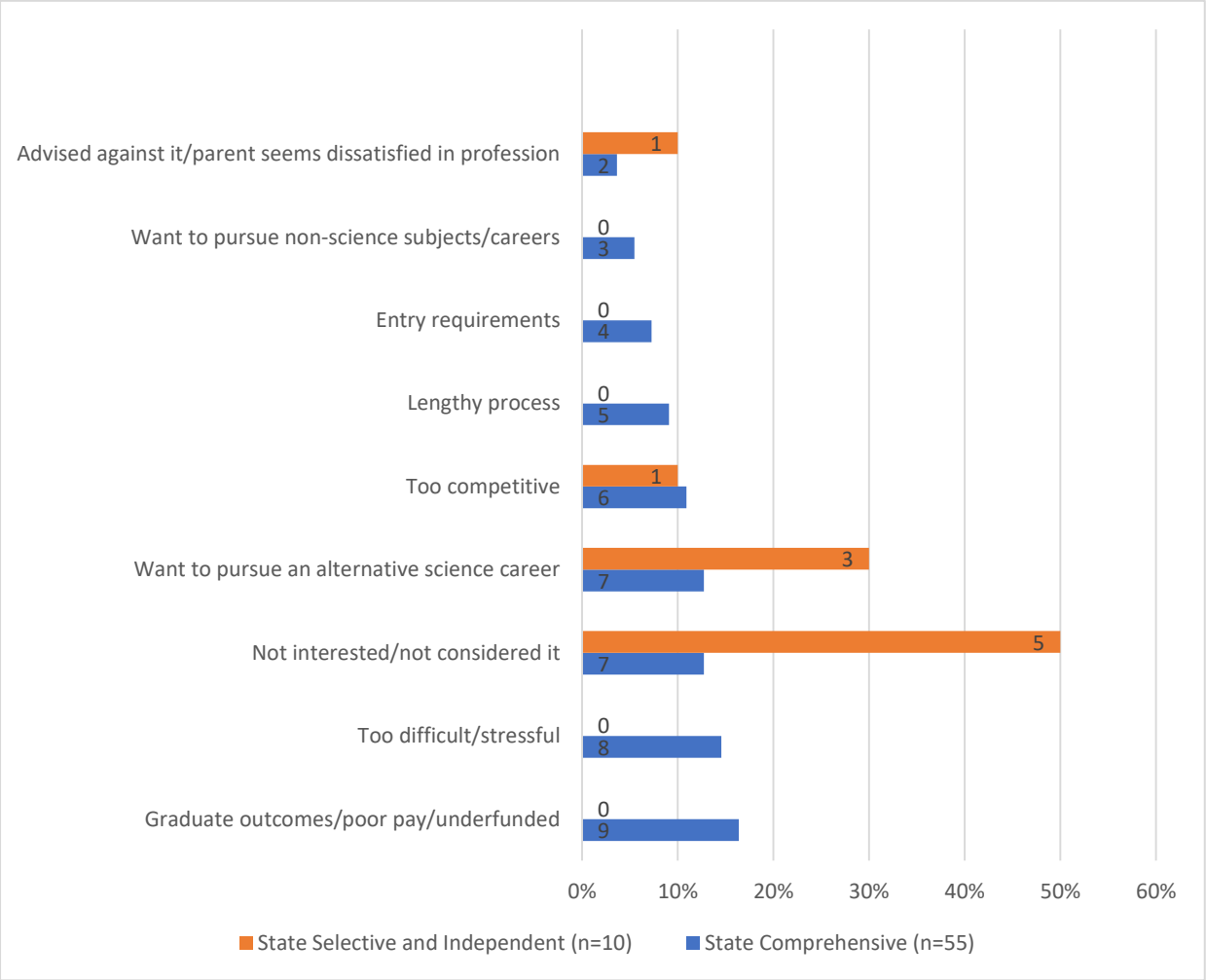


Figure 2.39: What deters you away from studying medicine?

Bar chart showing the percentage and number of responses within each category from Year 12 respondents to the question *'What deters you away from studying medicine?'* for those who responded that they were not considering medicine as a future option in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 55). Orange bars depict responses from participants from the state selective and independent sectors (n = 10). Where responses made up a fractional margin of the overall results these were grouped together under an "other" category and were only included in the final analysis where helpful to do so.

Figure 2.40

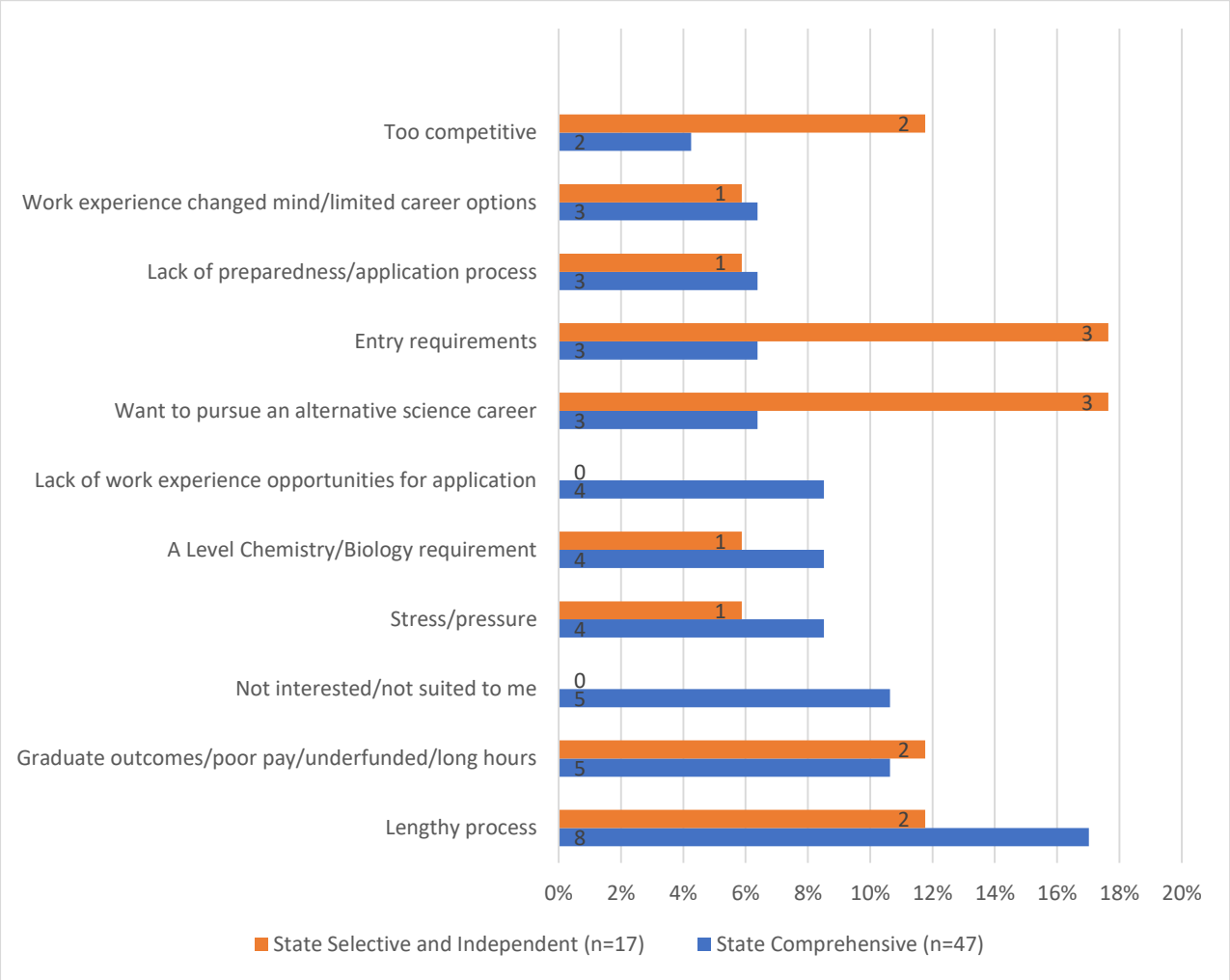


Figure 2.40: What deters you away from studying medicine?

Bar chart showing the percentage and number of responses within each category from Year 13 respondents to the question *'What deters you away from studying medicine?'* for those who responded that they were not considering medicine as a future option in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 47). Orange bars depict responses from participants from the state selective and independent sectors (n = 17). Where responses made up a fractional margin of the overall results these were grouped together under an "other" category and were only included in the final analysis where helpful to do so.

It is interesting to note that the majority response from the state comprehensive sector was that they were simply 'not interested' whereas, for the state selective and independent sector, the majority response was that the lengthy process to apply to medical school and then to ultimately become a doctor was off-putting. Although we should be mindful of making too many assumptions from such a low number of responses, it is important to look at what might be meant by these responses. At face value, 'not interested' suggests a consideration of, and then decision against, studying medicine. In reality, it may be that respondents simply hadn't considered medicine, or had not been encouraged to consider

medicine as a career path. It was raised earlier in this chapter that participants in questionnaire, focus groups and one-to-one interviews had raised concerns about being actively discouraged away from medicine by some of their key influencers, particularly within schools, and that they found it challenging to get support with their application. Focus groups, particularly with groups from the state comprehensive sector, also mentioned that peer groups are often filtered out early on in key stage 4, with teachers identifying students who "should" be applying to Oxbridge or competitive programmes, such as medicine, and working with them separately, thereby excluding students who hadn't shown early "promise" from accessing the same IAG and support.

"[The group of students who were chosen to be part of] The Brilliant Club. That's when, you know, "top" people [students] and they just go on trips. They went to Oxford, Cambridge. We never got a chance to."

"The Russell Group [school society] is only for a selected amount of people as well...I don't think that's right because it sort of makes a divide between us and the other students [who get that opportunity], because the other students who could potentially get into Russell Group, it makes them feel like they can't do it. I think it should be available to all students who realistically can get into Russell Group."

Quotes from focus group participants from the state comprehensive sector, regarding in-school selection and opportunities.

Therefore, it is also worth considering whether, "not interested" also means that respondents did not have enough information to make an informed choice. On the other hand, responses mentioning "lengthy process" indicate some knowledge and familiarity with the timescales involved with medical applications and/or in becoming a fully-fledged medical professional.

Again, with Year 12 responses in figure 2.39, it is difficult to draw too many conclusions given the low number of responses, particularly from the state selective and independent sector. What is perhaps of most interest to note here is that responses were more nuanced, with respondents citing the working conditions and observations of dissatisfaction within the profession as deterrents. Respondents were also deterred by the high entry requirements and competitive nature of the medical school application process and there is reference to impact on wellbeing, which shows some understanding in respondents about what the application process entails and the additional stress they perceive that this will cause. Figure 2.39 suggests that students are more engaged with IAG by Year 12, showing greater understanding of what becoming a medical professional entails and that they are able to weigh up the pros and cons enough to decide whether it is something they want to pursue. Although this somewhat contradicts the issues raised about not having enough IAG to confidently navigate a medical school application, having enough IAG about the day to day living of the actual profession to decide against applying to medical school is not the same

as having enough IAG to know everything required regarding the process of applying to medicine. This question also isn't able to tell us whether students felt confident that they had enough information to decide against applying to medical school when they made this decision.

Year 13 respondents offered similar responses in figure 2.40 to those of Year 12 in figure 2.39. However, it is important to discuss where their responses differed. In a few instances, undertaking work experience made respondents more aware of the realities of the medical profession and they decided that it wasn't for them, which suggests informed decision making and is certainly one of the reasons that work experience is encouraged. Respondents also touched on their concern that committing at such a young age to a path that leads to a defined vocation would also make it difficult to follow an alternate career path should they change their minds. These reasons show due consideration has been given and respondents have decided that, on balance, medicine is not the right choice for them; it isn't lack of access to resources or IAG etc. that has led them to their decision not to pursue medicine, it is simply that they don't feel sure that this is the right choice for them to commit to.

On the other hand, respondents also cited lack of work experience opportunities for the application process and lack of preparedness, particularly for an earlier and more intensive application process, as the issues that deterred them. These reasons suggest that these respondents were not deterred by medicine but felt it was not a viable option for them to continue to pursue as they lacked opportunities and/or support that would have helped them with a successful application.

"I was not able to get enough work experience or work shadowing to aid my application. I applied for many work experience placements and summer schools but was not successful. Many summer schools and medicine applicant events were expensive and I couldn't afford to pay for them"

"….didn't feel like I had a good enough personal statement, or related work experience and heard that people who didn't have work experience in a hospital were unlikely to be offered a place"

Quotes from respondents in Year 13 state comprehensive sector schools to the question 'What deters you away from studying medicine?' for those who responded that they were not considering medicine as a future option in the questionnaire.

Whether respondents' views about the weighting of work placements in the application process are accurate or not, viewing these findings in the empirical domain of critical realism tells us that the perception was there and affected their choices about pursuing medicine. It should be a cause for concern for medical schools that students, particularly students from

groups who are historically under-represented in medical education and the medical workforce, are struggling to find relevant work experience for their medical school application. Although work experience is one of several elements which will build a successful application, it does appear to be one of the most concerning and stressful areas for students and the one that they are likely to have the most misconceptions about in terms of how much is required.

2.3.7 Achieving the requirements to successfully enrol on to a medicine programme

Medicine is a very competitive course and has high academic requirements as well as additional processes and requirements in order for students to fulfil the criteria set by medical schools. With this in mind, the questionnaire asked participants who were planning to apply for medicine (or, in the case of Year 13 students, had already done so) how confident they were in achieving these requirements, what extra-curricular activities they had or were planning to undertake to support their application and what support would help them to achieve the academic and/or extra-curricular requirements for medicine.

Figure 2.41 shows that, proportionally, respondents from the state selective and independent sector were more confident that they would achieve the academic requirements for medicine with 87% stating that they were confident or very confident in doing so compared to 71% of the state comprehensive sector respondents. More than twice the proportion of state comprehensive sector respondents had little or no confidence.

Figure 2.41

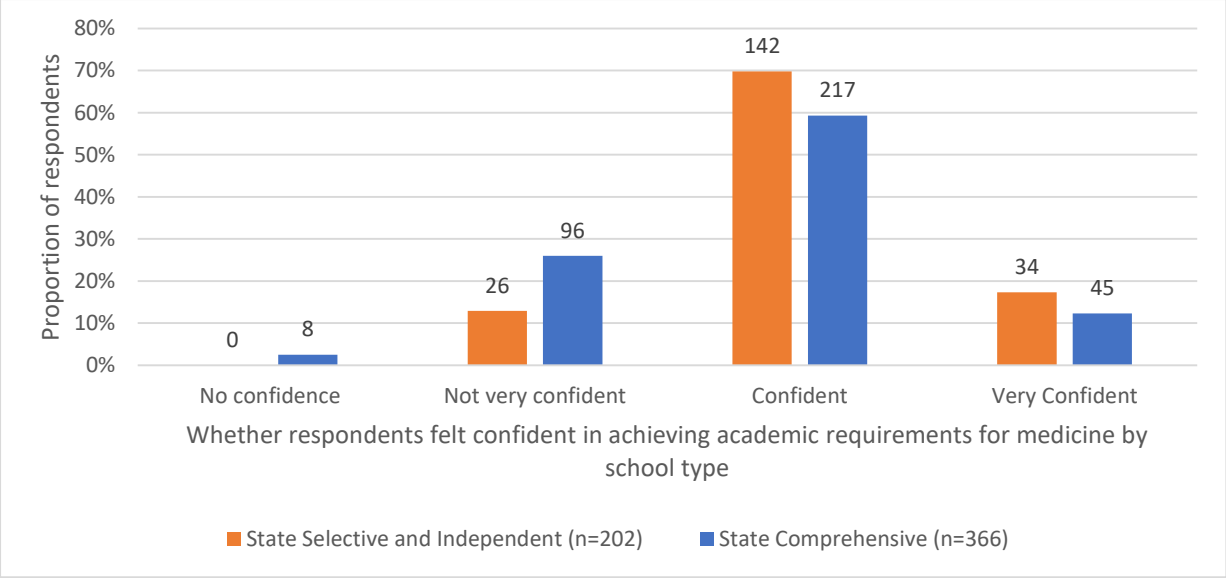


Figure 2.41: How confident are you in achieving the academic requirements for medicine?

Bar chart showing the percentage and number of responses within each category from Year 11, 12 and 13 respondents to the question *'How confident are you in achieving the academic requirements for medicine?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 366). Orange bars depict responses from participants from the state selective and independent sectors (n = 202).

It is beyond the scope of this project to see how this manifested itself in terms of actual academic results achieved though this difference in perception could be a potential factor in why students decide to not pursue an application to medical schools. Widening access initiatives largely focus on awareness raising and providing extra-curricular opportunities to students who are likely to achieve the academic requirements for medicine. Since completion of this thesis, the OfS have given HEIs a new directive in working in partnership with schools to support attainment (OfS, 2023a). Thus, it may become the case that HEIs become more involved in supporting students who are closer to the borderline academically, to help them get over the threshold with their qualifications. This borderline group are likely to be less confident in achieving the academic requirements and therefore may not apply without this extra help to boost confidence.

Figure 2.42 shows the confidence levels of respondents in achieving the extra-curricular requirements for an application to medical school and we can see a greater distribution of responses.

Figure 2.42

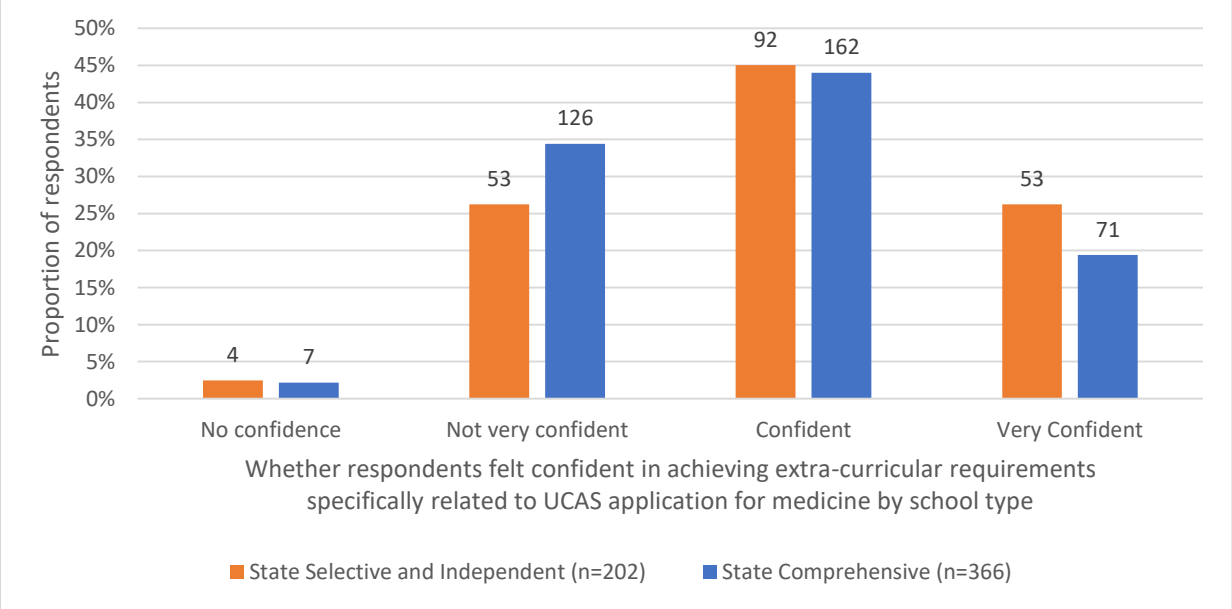


Figure 2.42: How confident are you in achieving the extra-curricular requirements specifically related to the UCAS application for medicine?

Bar chart showing the percentage and number of responses within each category from Year 11, 12 and 13 respondents to the question *'How confident are you in achieving the extra-curricular requirements specifically related to the UCAS application for medicine?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 366). Orange bars depict responses from participants from the state selective and independent sectors (n = 202).

Although state selective and independent sector respondents in figure 2.42 were still more likely to be confident or very confident in achieving these, the gap to the state comprehensive sector is much smaller than in figure 2.41 and the proportion that were confident is lower than for academic requirements. Both sectors showed less confidence in achieving the extra-curricular aspects of a medical application, which is in line with the discussions so far in this chapter that highlighted the challenges for many questionnaire, interview and focus group participants in accessing relevant resources and opportunities to support the extra-curricular aspects of medical school applications.

The questionnaire then asked participants to focus on the extra-curricular aspects of submitting a strong UCAS application and what they had already undertaken in this respect. Figure 2.43 shows the types of extra-curricular activities undertaken by respondents from the state comprehensive and state selective and independent sectors split by their year group. Respondents were able to select multiple responses as relevant.

Figure 2.43

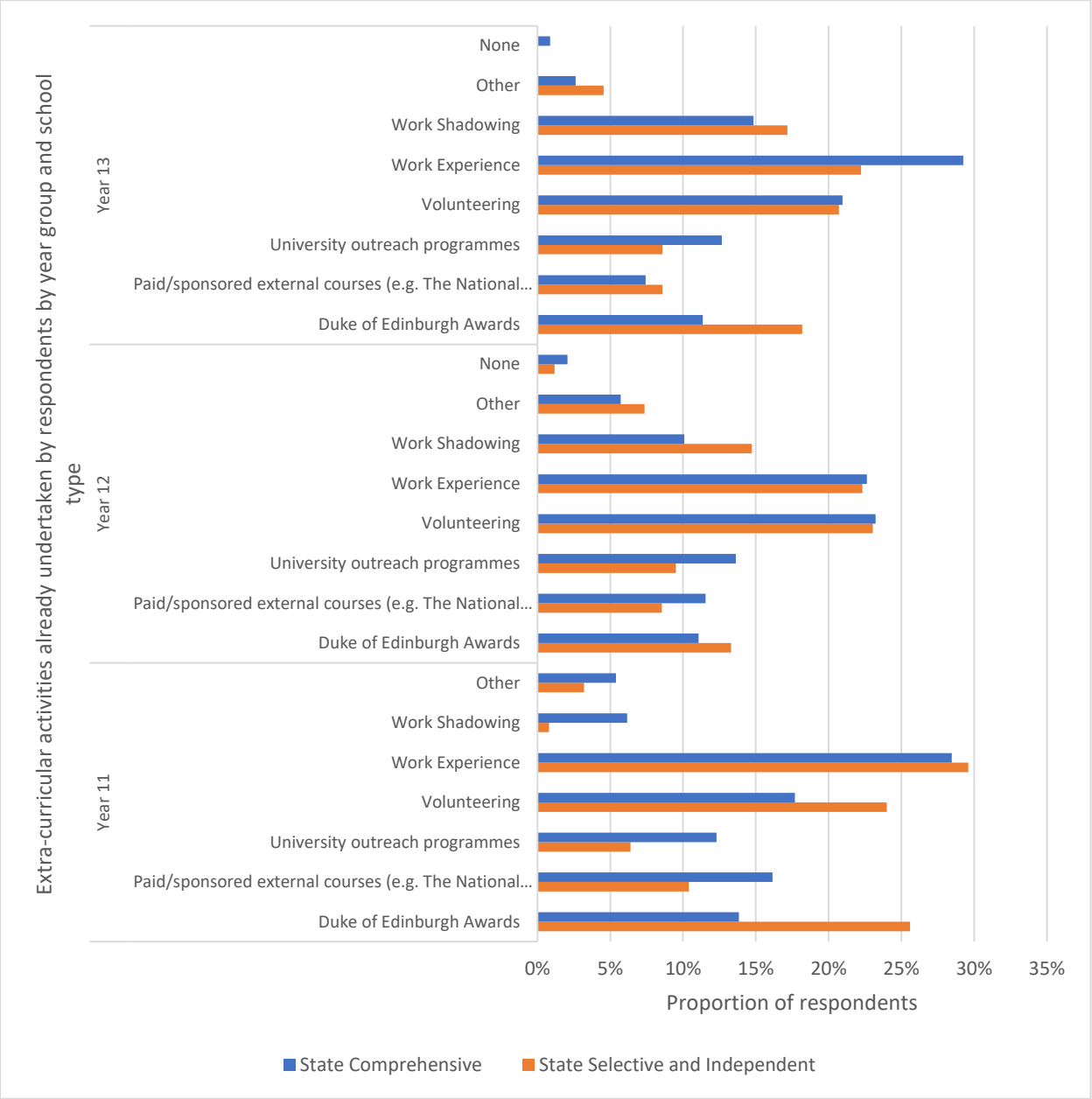


Figure 2.43: What extra-curricular activities have you already taken and/or booked in to undertake?
Bar chart showing the percentage of responses within each category from Year 11, 12 and 13 respondents to the question *'What extra-curricular activities have you already undertaken or had confirmed to undertake? Please select all that apply.'* In the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (Year 11, n = 130; Year 12, n = 822; Year 13, n = 229). Orange bars depict responses from participants from the state selective and independent sectors (Year 11, n = 125; Year 12, n = 421; Year 13, n = 198). Where responses made up a fractional margin of the overall results these were grouped together under an "other" category and were only included in the final analysis where helpful to do so.

Perhaps unsurprisingly, work experience and volunteering came up as the top responses across all year groups and both school sectors and we will look at this in further detail in figure 2.44 below. The other responses in figure 2.43 are perhaps as you would expect them to be based on discussions thus far in this chapter. More state comprehensive sector

respondents were able to access university outreach programmes, because they are generally the target group for these schemes, and more also participated in the National Citizenship Service scheme, which, at the time, was subsidised by government for low-income family students. More respondents from the state selective and independent sector accessed the Duke of Edinburgh scheme, which tends to have a fee attached to participation (both to join the scheme and also for equipment and activities). Some of the costs attached to the Duke of Edinburgh scheme may be subsidised by schools but this is less likely to be the case in state comprehensive schools, hence why there may be lower participation from that sector. Many respondents selected more than one response to this question so they were not relying solely on one type of extra-curricular activity to broaden their experience.

With all of the issues that have already been outlined regarding the challenges of accessing relevant work experience, the questionnaire provided an opportunity to find out what type of work experience participants had been able to secure. Figure 2.44 shows the types of work experience undertaken by respondents from both the state comprehensive and state selective and independent sectors, split into clinically-relevant and non-clinically-relevant categories and also by their year groups.

Figure 2.44

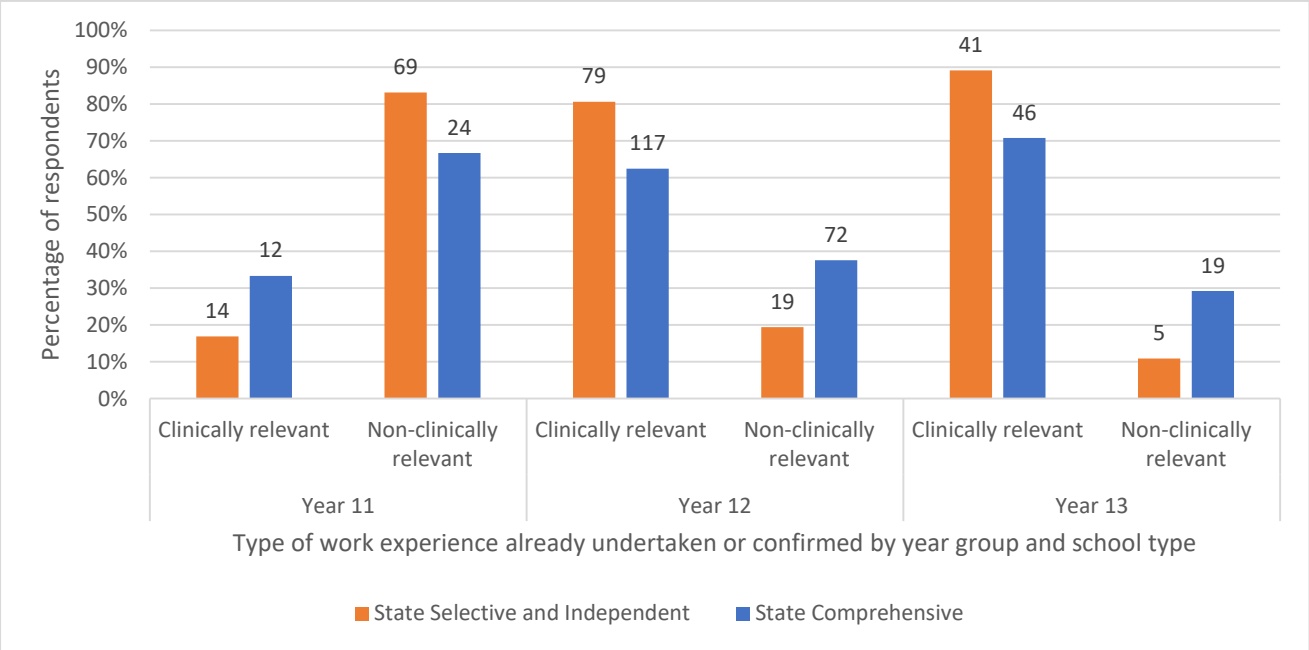


Figure 2.44: What work experience have you already undertaken and/or booked in to undertake?
Bar chart showing the percentage and number of responses within each category from Year 11, 12 and 13 respondents to the question *'What work experience have you already undertaken and/or booked in to undertake?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (Year 11, n = 36; Year 12, n = 189; Year 13, n = 65). Orange bars depict responses from participants from the state selective and independent sectors (Year 11, n = 83; Year 12, n = 98; Year 13, n = 46).

It is interesting to see in figure 2.44 that students from all sectors had undertaken clinically relevant work experience and not just students from the state selective and independent sector (who may have used their networks to access opportunities). One possible explanation could be that, by having greater engagement with access programmes, students from the state comprehensive sector are exposed to earlier work experience opportunities. It was not possible to investigate this further within the confines of the questionnaire format but this may be an area that future studies wish to explore further. With regards to the overall responses in figure 2.44, respondents were able to provide multiple responses as this was a free text question which was then coded into clinically relevant and non-clinically relevant experiences. A few respondents had undertaken both clinical and non-clinical work experience. It should also be noted that clinical experience included a vast range of responses, including a number within veterinary surgeries and that time spent at work experience placements was not factored into coding decisions. Therefore responses categorised as clinically relevant included those who had spent a few days in a hospital ward or two weeks at a GP surgery reception desk as well as those who had undertaken multiple hospital placements in the UK and overseas or had long-term roles in pharmacies etc. Although it is out of scope of this project or my range of experience to determine the efficacy of each type of placement classed as clinically relevant, from the responses received and included in figure 2.44, state selective and independent sector respondents were most likely to have undertaken multiple placements and engaged in the most highly sought after opportunities within hospital settings.

The questionnaire also asked what extra-curricular activities respondents were planning to try and undertake. A full breakdown of responses to this question can be found in Figure B26 in Appendix B. Responses were fairly similar to those in figure 2.43 though, understandably, a much higher proportion of Year 13 respondents from both sectors said that they were not planning to undertake any additional activities. As already alluded to by respondents in earlier questions, students are balancing a lot of different things at this stage in their academic careers in order to meet the requirements for a successful medical school application, whilst also trying to maintain/achieve high academic grades. It is therefore unsurprising that they would not want to add to this workload if they don't feel it is essential to do so.

Having asked participants to consider the academic and non-academic elements of the requirements for a medical school application, the questionnaire also then asked participants to consider what may help them achieve these requirements. This question allowed

respondents to consider the practical support they may need to achieve any or all of the different elements that make up a medical school application. Figures 2.45-2.47 show what support was suggested by Year 11-Year 13 respondents.

Figure 2.45

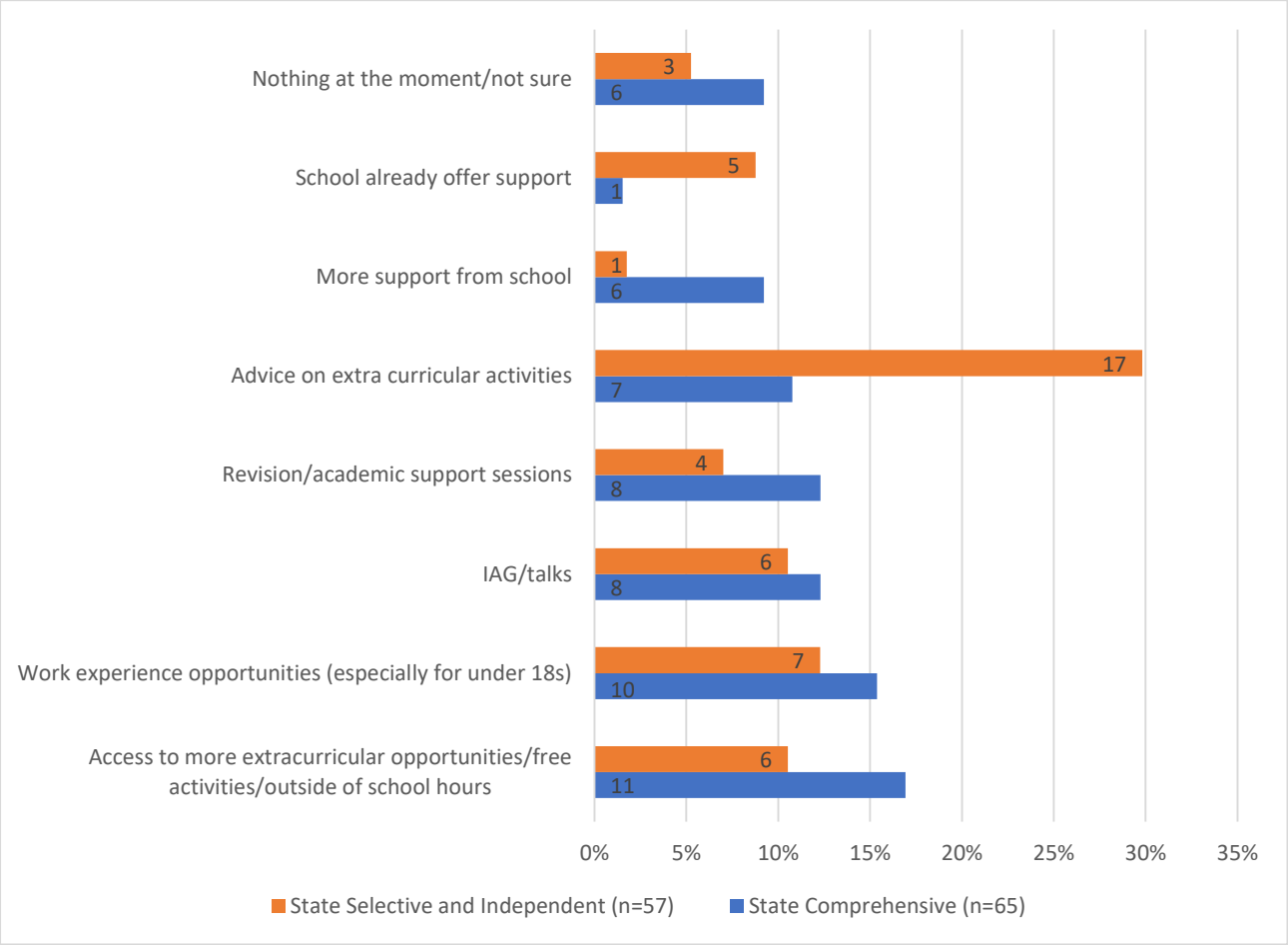


Figure 2.45: What support would help to achieve the academic and/or extra-curricular requirements for medicine?

Bar chart showing the percentage and number of responses within each category from Year 11 respondents to the question *'What support would help to achieve the academic and/or extra-curricular requirements for medicine?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 65). Orange bars depict responses from participants from the state selective and independent sectors (n = 57). Where responses made up a fractional margin of the overall results these were grouped together under an "other" category and were only included in the final analysis where helpful to do so.

Figure 2.46

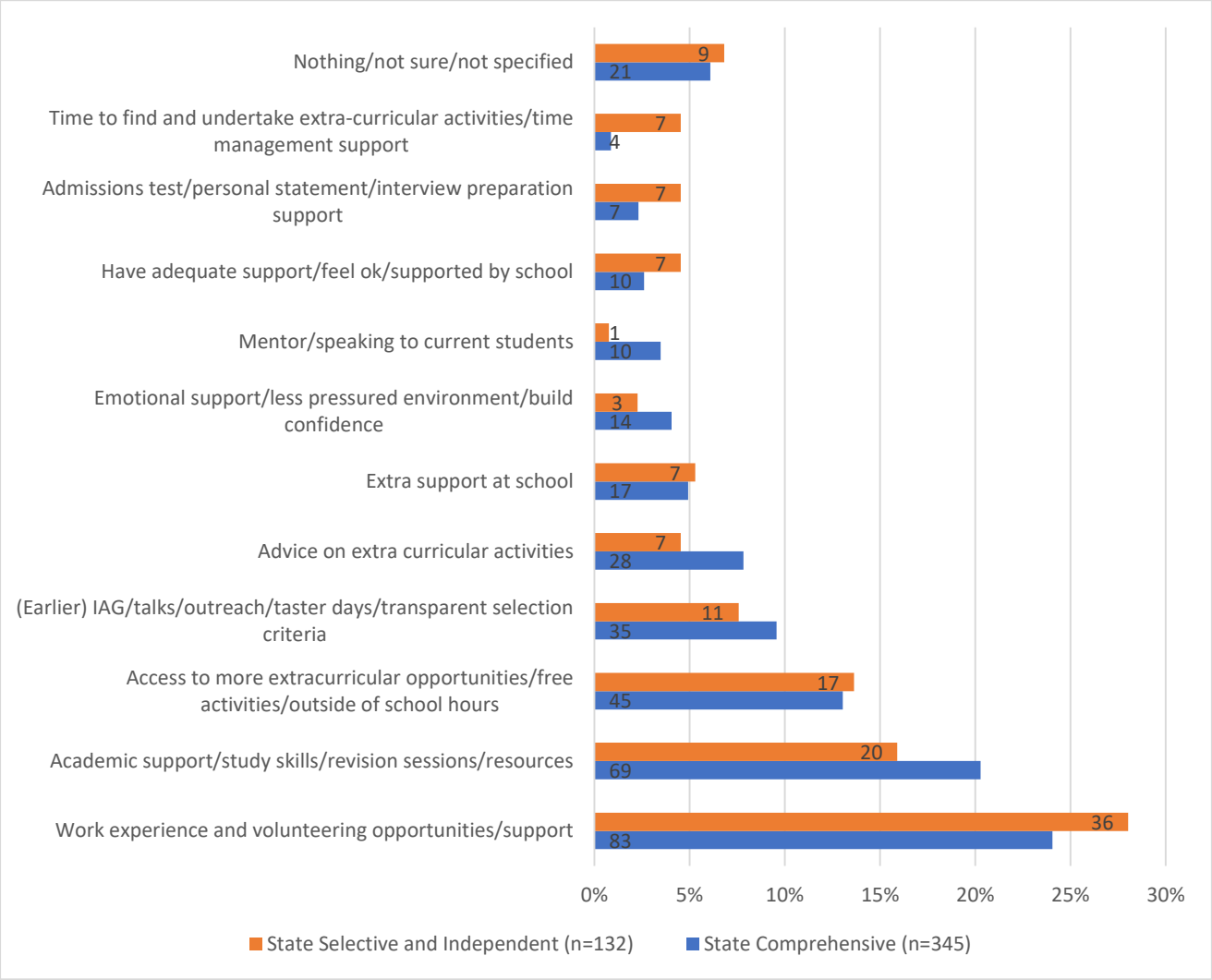


Figure 2.46: What support would help to achieve the academic and/or extra-curricular requirements for medicine?

Bar chart showing the percentage and number of responses within each category from Year 12 respondents to the question *'What support would help to achieve the academic and/or extra-curricular requirements for medicine?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 345). Orange bars depict responses from participants from the state selective and independent sectors (n = 132). Where responses made up a fractional margin of the overall results these were grouped together under an "other" category and were only included in the final analysis where helpful to do so.

Figure 2.47

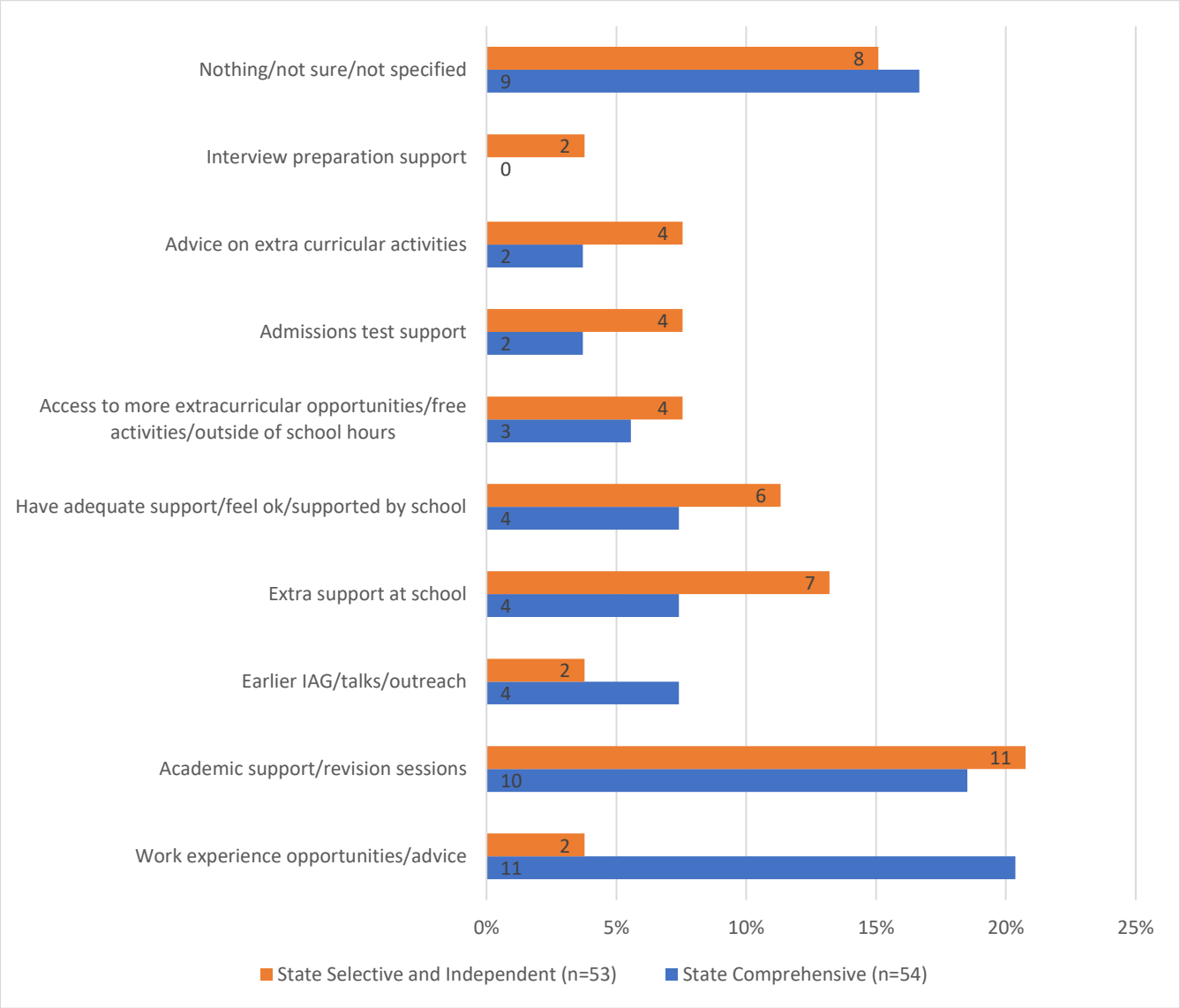


Figure 2.47: What support would help to achieve the academic and/or extra-curricular requirements for medicine?

Bar chart showing the percentage and number of responses within each category from Year 13 respondents to the question *'What support would help to achieve the academic and/or extra-curricular requirements for medicine?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 54). Orange bars depict responses from participants from the state selective and independent sectors (n = 53). Where responses made up a fractional margin of the overall results these were grouped together under an "other" category and were only included in the final analysis where helpful to do so.

For Year 11 students, many of their responses still reflect support requirements for the wider post-18 process, mentioning things such as IAG and work experience opportunities being made available at an earlier age. A high proportion of respondents from the state selective and independent sector (30%) wanted advice from universities about appropriate extra-curricular activities. Responses appear to suggest that they were most focused on what they could do to enhance their CV and make themselves stand out.

Respondents also mentioned access to more extracurricular opportunities as a useful means of support. However, these were discussed in very different ways by the two sectors. Respondents from the state selective and independent sector mentioned access to sporting activities and other hobby-based extracurricular activities that they felt would enhance their CV.

"More free clubs and activities made to be able to fit into a busy student's time table, e.g. on weekends rather than weekdays or not during exam periods"

"More sports or volunteer work as it would show me that I can handle certain things and I can become more cooperative with other people and help me improve as a person"

"There should be more activities like first aid courses offered to under 18s in order for them to have the best possible chance of achieving their dreams"

Quotes from respondents in Year 11 state selective and independent sector schools to the question 'What support would help to achieve the academic and/or extra-curricular requirements for medicine?' in the questionnaire.

In contrast, respondents from the state comprehensive sector focused more on extra-curricular activities that support their understanding of the university environment and IAG.

"Often I find that a lot of summer schools for aspiring medical students are aimed at students who don't have complete access to such events (for example if their parents didn't go to university). Whilst I think this is a great opportunity for them, I also think that sometimes other students feel like there aren't any opportunities for them to get an insight into medicine like others might be able to"

"More career support from universities"

Quotes from respondents in Year 11 state comprehensive sector schools to the question 'What support would help to achieve the academic and/or extra-curricular requirements for medicine?' in the questionnaire.

This is another interesting divergence between the two sectors. Once again, there appears to be a variance in the level of IAG students from the two sectors receive in Year 11. Where state selective and independent sector respondents may feel like they are well supported in the "essentials" and want to prioritise ways to make themselves stand out, state comprehensive sector respondents felt that they needed more engagement from/with universities in order to fully comprehend what a medical degree and career actually entailed and required of them.

There was also mention of getting additional academic support by way of additional classes and revision opportunities. Additional tutoring/one-to-one discussion opportunities to help with achieving the high grades required in the sciences was often mentioned by respondents from both sectors. Whilst much of this was directed towards school resource, there were

also suggestions that having academic support from universities and/or medical graduates would facilitate learning and understanding of medicine as a subject. This links in with the latest OfS guidance on university/school partnerships, encouraging greater collaboration in learning and the student journey. (OfS, 2023a).

Looking at figure 2.46, we can see that Year 12 students made similar comments regarding support for the wider post-18 IAG process, access to more extra-curricular activities and revision classes. However, they also mention support with study skills, emotional support including managing pressure, confidence-building, and time management.

"I'm stressed out due to the mass amount of competition"

"It's not the fact that I can't achieve the grades, I just never feel good enough therefore lack confidence in myself"

"More help from teachers….emotional support is very needed as stress is so prominent"

"A work life balance can be difficult to maintain when trying to achieve results and participating in activities to help support an application"

"….it's very difficult to manage all the extra-curricular activities necessary to form a successful application (obviously those who are able to do it are stand out applicants)....and am also unsure as to whether I have time to fit it in. I hope my voluntary work is enough for the universities, I also hope they are understanding to students who prioritise their A-Levels and existing voluntary work"

"Guidance on how to study efficiently"

"My sixth-form have currently exhausted all resources to offer opportunities to further us academically. However, there should be emphasis on extracurricular things which may even diverge from the course we wish to study to emphasise the need of not only being an academically challenging individual but most importantly a well-rounded person"

"One thing that could help….is to deliver lectures explaining methods of studying or talks where current university students share their experience through A-Levels and university"

Quotes from respondents in Year 12 state selective and independent sector and state comprehensive sector schools to the question 'What support would help to achieve the academic and/or extra-curricular requirements for medicine?' in the questionnaire.

This reinforces discussions earlier in this chapter, in relation to figure 2.13, where concerns were raised about mental wellbeing and the pressures of balancing everything required to successfully access a medical education, whilst also maintaining a very high academic standard. Responses in figure 2.46 suggest that, by the time students are in key stage 5, some of them are beginning to realise that they haven't developed the personal skills they need to successfully manage the demands of the medical school application process and it is impacting their wellbeing in various ways. Respondents have suggested additional

support in this area, not just from their schools, but from universities also. This is also highlighted in responses suggesting a mentor and opportunities to speak to current students about their experiences of the application process/A-Levels would be helpful. Having university mentors that can help to guide students through the process or being able to speak to current medical students to understand their experiences, how they overcame challenges and any tips that they may have is powerful role-modelling for students. It can help to boost their confidence in their own study skills and ability to manage the application process. For example, a longstanding model used by Imperial College London, as part of their Pathways to Medicine outreach programme, links Year 12 students to medicine students acting as mentors. Students are initially allocated to a current medical student as an online mentor when they join the programme, and then are further mentored by students during the Summer School. This is regularly cited by participants as an incredibly positive aspect of the programme that supports them improving their academic confidence.

Responses from Year 13, in figure 2.47, build upon the responses from Year 12 students in figure 2.46. They are more reflective about what would have helped rather than feeling that there is much that would be helpful to them at this stage. What is striking about the responses in figure 2.47 is the difference in proportions of responses suggesting further support is needed with accessing work experience opportunities. There was an indication by 20% of state comprehensive sector respondents, compared to 4% of state selective and independent sector respondents, that having more advice about this aspect, and what to do if you were unable to access highly sought after opportunities and/or relevant work experience, would have been helpful. This suggests that state comprehensive sector respondents may have struggled with accessing good quality work experience opportunities and, perhaps, under-estimated how time-consuming and difficult it would be to find something relevant. They suggested that more engagement from universities about the work experience aspects and greater clarity and transparency of what is required and how difficult it might be to access, would help them in a number of areas including time and stress management.

"I think colleges and universities should have more designated systems for helping students secure work placements and voluntary work and provide more information on the type of experience required"

"More opportunities that allow me to study and gain more experience at the same time"
"Medicine applicant specific volunteering schemes"

Quotes from respondents in Year 13 state comprehensive sector schools to the question 'What support would help to achieve the academic and/or extra-curricular requirements for medicine?' in the questionnaire.

The final question on the questionnaire asked participants to consider whether, given everything they had just shared, they felt that they had the same opportunities as their peers across the educational spectrum to support them in their decision making. Figure 2.48 shows the breakdown of responses by year group and sector.

Figure 2.48

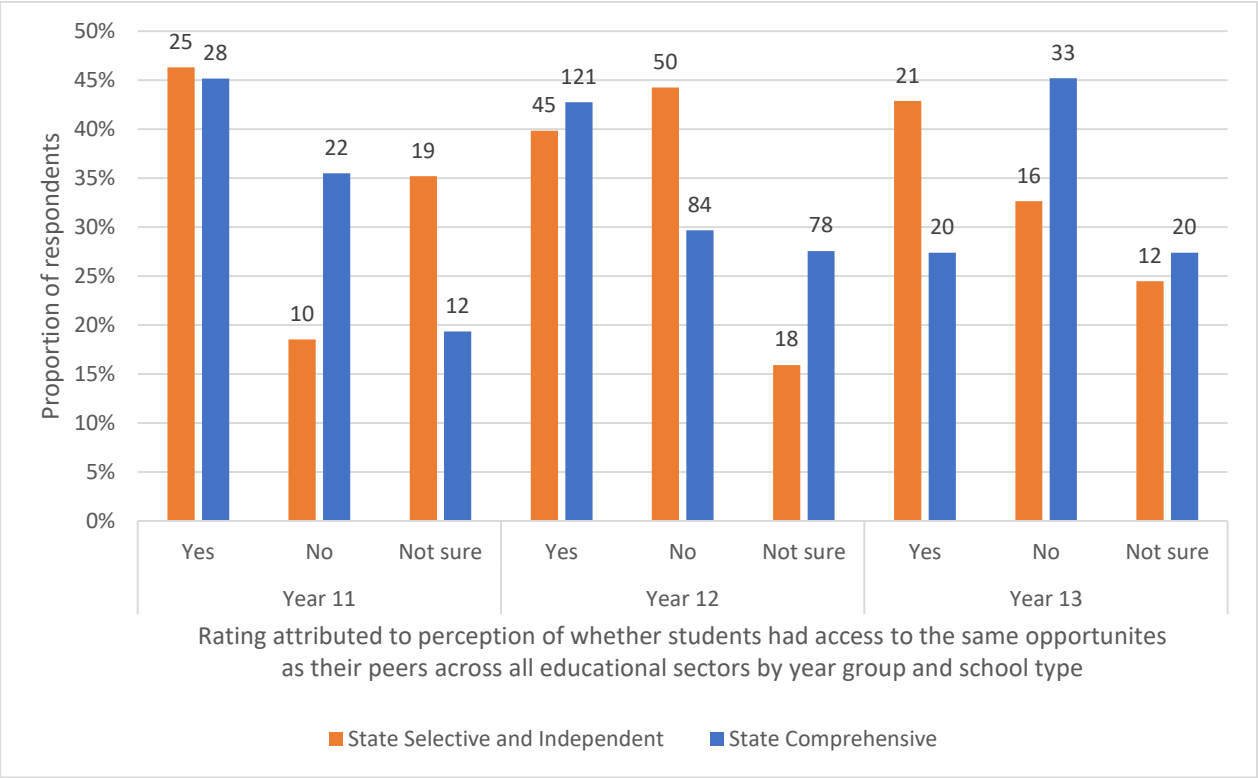


Figure 2.48: Do you feel that you have had the same opportunities as other school students (both within your own school and in other schools) to support you in your decisions about your future?

Bar chart showing the percentage and number of responses within each category from Year 11, 12 and 13 respondents to the question *'Do you feel that you have had the same opportunities as other school students (both within your own school and in other schools) to support you in your decisions about your future?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (Year 11, n = 62; Year 12, n = 283; Year 13, n = 73). Orange bars depict responses from participants from the state selective and independent sectors (Year 11, n = 54; Year 12, n = 113; Year 13, n = 49).

Upon first glance, figure 2.48 shows mixed responses. Year 12 respondents from the state comprehensive sector were slightly more likely to say that they did feel that they had equal opportunities than Year 12 state selective and independent sector respondents. But Year 13 state comprehensive sector respondents were much less likely to agree with this statement. Overall though, less than half of respondents from all year groups and sectors said that they felt that they had equal opportunities. However, with a critical realist lens, in the case of state selective and independent sector respondents that answered 'no' or 'not sure', their responses may not have come from a view of being disadvantaged themselves and rather

that they felt other students may not have had the same opportunities as they had received. This is something that came up in the focus groups, with independent school respondents acknowledging their privilege.

"I don't think Medic Portal came in for [local non-independent school name] they didn't, there was some money somewhere that got paid to them for them to come today and again, in like a week and a half, the BMAT people are [coming in], so the fact that we can afford that is, you know, great for us and we have more resources available to us, but like [local non-independent school name] can't pay for that"

Quote from a focus group participant from the independent sector, regarding school support with accessing information on applying to medicine.

So whilst it is interesting to see that a majority of respondents from all year groups and sectors were not sure or did not feel that they had had the same opportunities as their peers across the educational spectrum, it is difficult to know whether their responses came from a view of disadvantage or privilege. Interestingly, but outside of the scope of this project, independent school focus group participants also discussed a hierarchy of privilege within the independent school sector, where they felt that they had more opportunities than state comprehensive school students but perhaps not as many as students who attended 'more elite' independent schools than their own.

2.3.8 Viewpoint of teachers and careers advisors supporting students who want to apply to medicine

The final results section of this chapter looks at the findings from the teacher and careers advisors (hereby collectively referred to as teachers) focus group outlined in section 2.2.6. Whilst this chapter has thus far focused on the findings from data collection with students that are going through or have been through the process of applying to medical school, it is important to bring in the voice of key influencers to consider the challenges and issues outlined at a school level, in context.

This focus group was structured around the findings from the student one-to-one interviews and focus groups and so the questions were themed around similar elements to those that have been discussed in this chapter so far.

The first theme centred on student decision-making and choosing post-18 options, including discussion about whether there were any differences in how or when this happened for students that want to study medicine. There were some very interesting observations from the group about the behaviour of both students and schools in this process, which add an extra dimension to the perspectives of the students themselves.

The first aspect was that the context of the school was important to this process. Schools that are 11-16 only – i.e. they do not have a sixth form attached and so only serve Year 7-11 students – tend to focus their IAG on GCSEs and post-16 options only, therefore post-18 options are not considered a priority. Sixth form colleges and Further Education colleges will tend to start their post-18 IAG earlier than traditional sixth forms because they don't know the students personally yet as they are all brand new to the institution. Sixth forms attached to schools will tend to first focus on retaining students at their sixth form rather than necessarily encouraging students to think about post-18 options. This is not to say that post-18 options are not discussed or covered at all, but there is another agenda there that needs to be considered. Notably, these are contextual considerations that affect the state comprehensive sector to a much greater extent than the state selective sector and are unlikely to affect the independent sector at all.

Generally, teachers commented that students started thinking about their post-18 options "quite late" unless their parents had encouraged (or – in their words – "pushed") them to think about it earlier. They said decisions were largely made in Year 12, sometimes in Year 11, but even then usually firmed up in Year 12. This correlates with findings from the student questionnaires around when they make decisions and fewer students in Year 13 indicating that it was in key stage 3 or 4 and in responses stating parents were the greatest source of support with their decision-making.

"Year Eleven is kind of when that thinking starts, but actually it's Year Twelve that the pathways are kind of thrown in their direction, and the serious kind of business of right, which way do you really want to be going? But those conversations start to happen in Year Eleven for the sake of the choice of A Levels and so on."

"We do have it with parents….oh, I have got a child who is good at science, let them be a doctor. So yes, I would say that it is self-selecting in that respect as well, because they go, I am good at science, I am going to be a doctor."

"So I think it's quite late, unless their parents have really pushed them early on to get that interest from them."

Quotes from teacher focus group participants from the state comprehensive sector regarding commencement of student career considerations and parental influence.

With regards to medicine, teachers felt that there were two reasons why this was chosen as a career path at an early age by students, i.e. either because it is a profession that students are familiar with and will have experienced in terms of visiting the doctor etc., or due to

parental pressure. However, making this decision at a young age (in key stage 3, for example), didn't necessarily mean it would, or should, be a student's final decision and, in many cases, they felt it was unlikely to be so.

"A lot of them make a decision for medicine, it's quite a childish decision, so it goes back to this thing of, that's what they have heard of, and they have done science, doctor, you know what a doctor is. So it's an early decision, it's not necessarily a final decision and it's not necessarily a researched and thought through decision. So it feels like people choosing earlier, because the ones who stick with it, did choose it early, but actually, it's more to do with the nature of what you know about."

Quote from a teacher focus group participant with work experience in both state selective and state comprehensive sectors regarding stage at which career choices about medicine are made by students.

"So from a Biology teacher point of view….we have a problem with, what happens is, kids are told, oh you are good at science, be a doctor, and actually lots of them don't want to do medicine, but for some reason that's always been the career [they are encouraged towards]. So I do a lot of advising out – do you actually want to be a doctor? Or do you want to do something within health? Do you actually just like science? Like, it's really different. We do have it with parents, especially parents, again, who haven't actually necessarily got a background in science themselves, for them that's the career that they know."

Quote from a teacher focus group participant from the state comprehensive sector regarding stage at which career choices about medicine are made by students.

"There is a lot of parental selecting. I heard yesterday, we do the IB, of a student whose mother took her phone away until she agreed to do Higher Level Chemistry."

Quote from a teacher focus group participant from the state selective sector regarding parental pressures to pursue medicine.

The teachers also discussed the role of staff in supporting decision-making around post-18 options. They highlighted that schools are meant to deliver careers education throughout secondary school but resourcing this is an issue for many schools, particularly in the state comprehensive sector. Careers guidance, particularly in younger years, is usually delivered through non-specialist teachers, such as personal tutors. For key stage 3 students, the main focus is on aspiration-raising so students are encouraged in their career ideas regardless of ability but then this is meant to become more focused as students move up through the school. However, some teachers in the state comprehensive sector said that IAG could end up being left to chance as individual teachers in a school will provide different levels of IAG and not necessarily at the same stage as other teachers within the same school. It was almost like "potluck" as to whether you were allocated to a teacher who took IAG seriously and supported you appropriately.

"I would say….it's the individual teacher. So I know, from my experience, I talked to my Year Sevens about careers, because I know that actually….children make their choices about what they are going to do at eleven, so I know that as an individual, so I do a lot. But there will be teachers within my school who don't do anything until [students are aged] sixteen."

Quote from teacher focus group participant from the state comprehensive sector regarding IAG for students.

The teachers added that the first point that focused IAG is introduced to students is usually in Year 11 when they are making their post-16 options. However some schools are aiming to change this model to provide careers interventions in Year 10, particularly with a greater impetus now placed on GCSEs with the removal of AS Levels as a mainstream qualification. This is useful information to consider from a widening access point of view in terms of targeting information.

Another theme that came up in the teacher focus group was around information and resources to support decision making, particularly in relation to applying to medicine. There appeared to be a disparity in how information was acquired and how confident teachers were that they were sharing accurate, up to date knowledge. The independent sector, and to a lesser degree, the state selective sector schools, were much more confident that they had the knowledge and resources to support students and provide all information accurately, with regards to making an application to medicine. They often had dedicated staff, or a team of staff, to support careers and university IAG whose role was to proactively work with students. These schools also supported students to sign up for paid-for content on websites such as The Medic Portal. On the other hand, it was suggested that state comprehensive sector schools relied much more on students to find information for themselves and then inform their teachers of the latest information.

"….If I am really honest, I listen to what they [the students] are telling me, because they are the ones with the time and the inclination to look up the changes in application. Appalling though it is, I tend to place quite a lot of confidence in them [to give me the most up-to-date information on medical school admissions]."

Quote from teacher focus group participant from the state comprehensive sector regarding IAG for students.

Teachers spoke about the time pressures they faced, both in terms of keeping up-to-date with knowledge and/or changes around admissions policies and criteria and also in terms of finding time in classes to provide IAG. There wasn't always a visibly designated careers teacher, particularly in state comprehensive schools, that students could identify and speak to and so the information they received may well be limited by the knowledge of the teacher they approach. This was acknowledged by participants that worked in the independent sector who recognised the advantages that they had with regards to resources.

"It's a balancing act, we are lucky that we have staff that have some time to do these things with students. If you are a teacher and you are trying to do this on top of all your other workload, it's really hard."

Quote from teacher focus group participant from the independent sector regarding challenges of IAG as a teacher rather than a careers advisor.

This variability in resources and information provided was also reflected in other aspects of supporting students with post-18 options. The better resourced schools, across all sectors, were able to offer, for example, weekly groups and/or medical societies for medical applicants. The format of these groups varied, with some being student-led and some being staff-led, but all still relied on a teacher being available, either to participate or supervise.

"I have a weekly medical group as well, where I kind of set the reading books, and I give them a project of researching different universities to feed back."

"They [medics society] are totally student led, you just have to have a teacher who will willing to let them in the lab and use the projector, there is very little oversight from staff."
Quotes from teacher focus group participants from the state selective sector regarding student medic societies.

Other activities offered included inviting universities to come and speak to students, having in-school annual UCAS days/courses and careers conventions with internal and external speakers; school alumni, particularly those studying at Oxbridge or studying medicine, returning as speakers and running information evenings for parents. Most schools offered BMAT/UCAT entrance tests support but to very different extents, with independent schools having the ability to pay for organisations such as Medic Portal coming into run entrance test preparation days with students, as also mentioned in the student focus groups with independent sector students.

"[The] Courses and Careers Convention we open to Year Elevens and Year Twelves. There are various talks and I get universities in for that. We do have a specific medic talk at that day."

"We get Medic Portal to come in and do a training day for UKCAT and BMAT as well, so they do get external help for their exams."
Quotes from teacher focus group participants from the independent sector regarding external support provided for students intending to apply for medicine.

"For medicine, we have got external speakers, we are quite lucky in that we have got alumni who are happy to come back, so we have had year fourteen students who are first year medics coming back and telling them about their first few weeks. We have got doctors who are happy to come in, who are ex [school name] who come back and say this is what it was like."

"In terms of the UKCAT stuff I have got one member of staff that offers sessions, two sessions on each of the sections, of the BMAT, if I have got it the right way round. So that's in school."
Quotes from teacher focus group participants from the state selective sector regarding external support provided for students intending to apply for medicine.

"For the medics, I tried to support them with some UKCAT prep and things like that, from early in Year Twelve"
Quote from a teacher focus group participant with work experience in both state selective and state comprehensive sectors regarding support provided for students intending to apply for medicine.

Most schools offered some sort of interview practice, though, again, the frequency and quality of interview practice (i.e. whether it was generic or medicine-focused) tended to vary according to resource availability of the school, as did the expertise of the interviewers. Some schools that were part of a consortium suggested that, whilst they only had one careers advisor that worked with all the schools in the consortium, they were able to pool their resources and interview each other's students so that the student was interviewed by a teacher that was unfamiliar to them. Other schools invited external professionals in for the same purpose but not all schools were in the position to offer either of these opportunities.

"We offer some internal MMI and sort of panel interview prep in school with teachers, but we also signpost students, through the medical society, to organisations who are willing to run Saturday courses for that, if they can afford it. If they are pupil premium disadvantaged, they can apply for half funding from the school for those courses."

"….tend to do, or sort of farm out as I can, interview practice. I borrow the drama department to do MMIs, apparently that's what a lot of actors do when they graduate, so it's good for them too."

Quotes from teacher focus group participants from the state selective sector regarding interview support provided for students intending to apply for medicine.

"We are in a consortium as well, so I think we get, for the Oxbridge candidates, and for medicine, that they get interviewed by a teacher from another school, just so they're not as comfortable. We do maybe the MMIs, but they see us every day, so they get used to it. So we have found that's been helpful for the students [to be interviewed by teachers from other schools]."

Quote from teacher focus group participant from the state comprehensive sector regarding interview support provided for students intending to apply for medicine.

At the lower-resource end of support offered to students was signposting to university lectures or outreach programmes and advice to call university admissions teams with any queries. Some schools relied on the resources and opportunities offered by universities to support their students, particularly for applicants to subjects such as medicine, but it was also highlighted that rural schools are most affected because they do not have as much or as easy access to opportunities offered by universities and generally even fewer staff, so they have less time to maintain knowledge. This is supported by recent research from the University of Bath looking at the effect of geography in accessing 'elite' HE. (Davies et al, 2021)

"What I try to do is to encourage them, because we are in London, to try and go to the local university, maybe go to a lecture. So I think a few last year ago they went to Kings, I think they have medicine and dentistry lectures every evening, and those are done by actual doctors, and they tell them realistically what the journey is like. So whereas we can't do it, we try and source it for them to kind of find that for themselves."

"….Rural schools are a real problem, I have lots of friends who work in rural schools, and they don't have the capacity anymore in terms of science in general. I am talking about people with departments of like two science teachers. So they definitely don't have the time to be looking at what they need for medical school, and they don't necessarily, that means that those kids in those schools might miss out, not because they should or shouldn't, just because the school doesn't have the information."

Quotes from teacher focus group participants from the state comprehensive sector regarding keeping up to date with information with regards to the process for applying to medicine.

Another issue that was raised under this theme was that many students, particularly in the state comprehensive sector, are unfamiliar with the concept of reading around a subject and how to do this. Schools aren't always in a position to support with teaching this concept and so there is often a skills gap that will have a large negative impact on students who have not been exposed to this kind of research skill as yet.

"….there are some students for whom the whole world of reading around the subject….it's just so alien. So that's where it's actually very difficult. It's like a sticking plaster you are doing….So this is where you are up against the core thing of what people are used to, what their background is, what their interest is, and so solving it is going to be very different, according to what kind of student you have got."

Quote from teacher focus group participant from state comprehensive sector regarding student exposure to study skills.

It is important to note that the students most likely to be disadvantaged by these differences in support offered to applicants by their schools are those that medical schools are trying to attract as part of widening access commitments. This also aligns with what student participants from the state comprehensive sector in the questionnaire and focus groups mentioned about lack of appropriate support from their schools.

Another theme that emerged from the focus group was what teachers found challenging about supporting their students with applying to medicine. One of the greatest challenges mentioned was managing expectations of students. This was especially in academically high achieving schools such as independent and selective schools. There seemed to be a perception from students in such schools that they "should" be aiming for a degree or vocation such as medicine and that it was an entitlement to do so. Teachers found that it became a difficult balance between encouraging and supporting students who have the potential to succeed in making an application to study medicine, but not always the confidence to make the application versus students that need a reality check because they

have the confidence but not necessarily the academic grades to apply to medical school. On this point, teachers felt that the removal of AS Levels as a mainstream qualification was of real detriment. They felt that AS Levels used to be good self-selection of students into medicine and now there is onus on teachers to tell students that they won't get into medicine and actively discourage them from applying. Teachers, particularly from state comprehensive sector schools, felt that they almost had to become selectors for medicine because, at some point, they are making judgements about suitability of students for medicine but not always based on the most up-to-date or accurate information on selection processes or criteria for medicine.

"I used to find AS results day awful in the extreme, but incredibly useful in selecting out people. That was the day you found out you weren't going to be a medic aged eighteen, you weren't going to study that. Now that's gone, the selection process is, as a teacher, I am then having to say, this isn't for you, but I haven't got the hard evidence to back it up, you are just going to have to trust me on this one. Then you feel awful, are you right 100% of the time with your judgements on kids? I am not."

"Because they don't know people who go to university, you can tell them, but to them, you're just saying it because you have been there, you like it, it worked for you. 'I don't know anyone, I am not going to fit in.' I have girls saying that about going to certain Sixth Forms, like no, they are really posh there, I could never go there, and actually, they could go there, they could excel there, and they would be fine, they would keep up no problem, but they are self selective, and it's a really tricky balance, because then you do also have the reverse of kids who shouldn't be thinking about that, because actually, they wouldn't enjoy it, if they kept doing it, they wouldn't even enjoy it, why put yourself through that?"

"Our pressures, our challenges are about setting up the systems to kind of streamline those who are serious contenders, versus those that we almost need to kind of give a reality check."

Quotes from teacher focus group participants from the state comprehensive sector regarding managing student expectation on getting into medicine.

Confirming what some students had raised in their focus groups, the teachers suggested that some schools – whether they admit it or not – will put students off applying to BMAT institutions (especially when there was only late entry BMAT) in a similar way that they will put students off Oxbridge. This is not always because of the capability of students but of the school themselves where they have never had success with such applications.

"We were very cautious, we did say to students, the problem with BMAT is you won't know how you have done until after you have applied, so it's quite risky….but yes, [we] probably would tend to encourage them away from it too much."

"It's a really hard one, because I don't think anyone is doing it in a malicious way, but it happens, people are actively encouraged not to do certain things, like BMAT."

Quotes from teacher focus group participants from the state comprehensive sector regarding discouraging students from applying to BMAT institutions.

This should be of great concern to medical schools in terms of their widening access agendas, particularly those that use the BMAT entrance test as part of their selection criteria. The students that are most likely to be impacted by being discouraged from applying to BMAT institutions are most likely to be from the pool of students that medical schools are trying to encourage. Although the early BMAT sitting may mitigate the "risk" element in terms of students knowing their BMAT results before they submit their UCAS application, it does not address the perception of some state comprehensive schools that their students are not what these medical schools are looking for. This concept of not fitting in also came up in relation to interviews and is discussed in more detail later in this section.

In terms of resource issues that were particularly challenging for teachers and schools, the key additional challenge to those already outlined above, was that in schools where there were not designated careers advisors, teachers didn't feel that they were most effectively positioned to try to inspire students, as they may also be their teacher who has to, for example, enforce discipline. Students may not take their advice seriously or mistrust their intentions if, for example, they have been recently told off by the teacher.

"That role of teacher, one minute you are telling a student off, or telling them they have got to do their homework, and another minute you are doing the guidance, there's all sort of stuff goes on there."

Quote from a teacher focus group participant with work experience in both state selective and state comprehensive sectors regarding teachers providing careers IAG to students.

From a widening access perspective, this is important to know and to be able to consider what resources medical schools can develop to support teachers and students in deciding, without any perceived bias, whether medicine is the most suitable and realistic vocation for them to pursue. The teachers didn't have immediate thoughts on what this may look like but said it was something they would welcome.

Teachers also discussed their perceptions of the role of universities and medical schools in exacerbating these challenges. Teachers felt that there was a lack of coherence and transparency in the application and selection process for medicine, particularly with so many variables across medical schools. They felt that, for example, variability in selection criteria between medical schools encourages students who are unlikely to receive any offers because those students then feel like they can "game" the system to hit the right combination for at least one of the medical schools, even if they are not clear which one it might be.

"If medicine is supposed to be coherent, that you're a doctor from whatever you are, so the training should be the same. But the differences in what you have to apply for, what you have to do, there's quite a lot of them. Because there are all these differences, it makes weak kids keep hope alive, that they think they can somehow finesse their way through the system. Whatever, I think you have said you have done to put people off, I have tried as well, and there will still be kids who will say, it will be all right. No it won't, yes it will, and it isn't. But I think the lack of transparency, just because there are these tests that are looked at in different ways, the criteria that are looked at in different ways, allows sort of hope to flourish where it shouldn't."

Quote from teacher focus group participant from the state selective sector regarding differences in selection criteria for medical school and lack of transparency having a negative impact on students.

This is an interesting perspective coming from teachers. Lack of clarity and transparency of information is something that came up with students in the questionnaire and their focus groups and it appears that this is something that teachers also agree with, whilst also highlighting the impact it has on their students in, essentially, 'setting them up to fail' by putting all their faith into a system that doesn't clearly indicate exactly how metrics are used and weighted.

There were also some interesting narratives from the independent and state selective school teachers regarding the role of university interactions. They felt medical schools, outreach programmes etc. raise aspirations to medicine rather than showing students the realities of studying medicine, which is then left to them as teachers to try and unpack for the student and to discourage those they believe will be unable to meet the academic requirements or that would not enjoy or be suitable for the reality of the career itself.

"You get sort of constant offers to raise aspirations. I don't want anyone to raise any aspirations, I want them lowered….university visits, taster sessions, it's always for medicine, the idea is to raise aspirations, not give a picture of how it is. I am not terribly sympathetic."

Quote from a teacher focus group participant from state selective sector regarding student exposure to the realities of studying medicine.

State comprehensive sector teachers were less inclined to agree with the discussion regarding aspirations but did agree a greater exposure to the realities of medicine would be of great benefit to their students, particularly those who had not had exposure to the profession through family and friends.

"From our context, we are in a school with high levels of social deprivation, so I think that has an impact….They may be coming to us with very little knowledge [of what it is like to actually be a medic], because they don't have that uncle who brought them in to look at the heart operation, that we know is going on in some schools. Their work experience will be in a nursing home or care home and that's it. I think for us, that's the difficulty, because they haven't had access to it, so we want to do everything to empower them, and that's quite difficult…."

Quote from a teacher focus group participant from state comprehensive sector regarding student exposure to the realities of studying medicine.

This is somewhat of a paradoxical challenge for medical schools to contend with. Widening access and outreach activities aren't just about raising aspirations but also about being realistic about the challenges and what is expected of you in the profession. Whilst this may risk discouraging rather than encouraging some students, it also helps them make a more informed choice and supports teachers to manage their students' expectations.

Other issues raised included the amount of school time that is missed by students applying to medicine in comparison to other subjects to prepare for and take entrance tests and interviews. Teachers felt this affected their academic performance badly and put a lot of pressure on them as teachers to accommodate catch up resources and sessions. This was a particular challenge for state comprehensive sector schools where time and resources are already very stretched and timetabling is very tight so there is not much room for flexibility.

With regards to the interview process, this raised some very strong views on belonging and fitting in at medical school and in the profession. Teachers from the state comprehensive and selective sectors in particular spoke about the challenges of supporting students with "elocution" for interviews. They felt that even very capable students that they would be confident in supporting to become medical professionals, would be likely to not succeed in the selection process because they wouldn't be seen to 'fit in' with the way they spoke or their body language etc.

"Mine's a state school but it's selective, and that's, so I completely feel the tightrope because you have people from a deprived background who are very bright, who you think, 'you really could go on and do this, but you know what, you are going to sound terrible at interview.' [Student's] words to me were, 'yes but what if I say something in hood?' So I have got to raise his aspiration, but also….[help him to] get in through the front door, because he is undoubtedly bright enough, he is charismatic enough to do it – is his face going to fit through all the different hoops in all of this? Very difficult."

Quote from a teacher focus group participant from state selective sector regarding potential bias in selection system.

It is of great concern that teachers perceive there to be great bias in the selection process for medical education, particularly as, in the empirical domain of critical realism, these biases are also likely to be absorbed by the students they work with. Medical schools should be concerned that there is still an impression that you have to belong to a certain type of background and speak a certain way in order to get accepted at medical school and consider which aspects of how they market themselves and engage with students and teachers may lead to these impressions. For example, a medical school may work hard on its branding and marketing material to promote a more diverse visual image and think that

this addresses any concerns about diversity. However, if all the people involved in recruiting or interviewing potential candidates look and sound a particular way, students may not trust that they will be given a fair opportunity if they don't 'fit in' to the same mould. This is certainly something that I have seen evidenced a lot in my professional experience working in inclusive practice. Many times, teachers' impressions of bias in this kind of context comes from the feedback they hear from their students after experiences such as interviews and this is then passed on to future students. If medical schools truly want to eradicate the perception of elitism that is held by many of the group that they are trying to attract with widening access initiatives, they will need to critically assess their own approaches to the selection process including the diversity of the panels they use for this process and how homogeneity may impact and influence the offers that are and are not made. This is not to say that a tokenistic approach to diversity should be taken, but that, if they don't already, selection panels should receive training to diversify their thinking and assumptions.

In a similar approach to that which was taken in the student focus groups, teachers were asked whether they felt confident that they/their institution had access to, and were able to provide, all of the information that students needed to be able to make informed decisions about their future. Only the teacher from the independent sector could say with 100% confidence that they believed that to be the case, with the only caveat being that students may not necessarily take it all on board but the information was definitely available. The selective sector teachers were also confident that they could provide a "good" level of information. Confidence was less prevalent amongst state comprehensive school teachers who said that they believed the information was out there to access but that there is a limit in terms of staff resource to keep on top of it all and they were not confident that they pass the information on 100% accurately. Instead they encouraged students to go to local university events/lectures etc. and to contact universities themselves, especially with any complicated questions.

"I think we are quite lucky, I think we can provide them with, I would say, all of it. Do they take it all on board? Probably not. But I think we are quite lucky, the school I teach in, we are quite lucky in that they can resource it."

Quote from teacher focus group participant from the independent sector regarding support and resources that they are able to provide for students applying to study medicine.

"I feel that we have got access to the information. Whether we do access it and pass it on completely accurately 100% of the time, probably not. We place a lot of responsibility on students to find out the accurate information and share it amongst themselves generally."

Quote from teacher focus group participant from the state selective sector regarding support and resources that they are able to provide for students applying to study medicine.

"I think in our school, it depends maybe on a teacher by teacher basis. What I try to do is to encourage them….to try and go to the local university [for information]."
Quote from teacher focus group participant from the state comprehensive sector regarding support and resources that they are able to provide for students applying to study medicine.

There is a lot for medical schools to glean from these responses which may help them with how they engage with students as well as schools. The issue around access to information about applying to medical schools isn't so much about availability but about how to digest it. State comprehensive schools and students need additional assistance in keeping up to date with and understanding the process, any changes etc. There is minimal resource to do this within schools which can lead to misinformation for the students.

So what can universities do to help? This was the final theme of the teacher focus group which brought up some similar themes to the students' responses to this question but also many interesting comments and ideas that had not been considered by students in the questionnaire or in their focus groups.

The first thing that was collectively agreed upon was that the application process and system for medicine was not equitable to the rest of the HE application system and better support should be provided by medical schools to ease pressures on the schools in supporting medical applicants.

As raised by students, the teachers also wanted medical schools to be more transparent with their selection criteria and how it was weighted but also what the medical schools genuinely accept in terms of grades and entrance test scores. They felt that there was often a disparity between what medical schools said they would accept versus the entry profile of those who actually got accepted. For example, if a medical school advertised that they would accept students with 3 Grade As they wanted to see the proportion of students that achieved a place at the medical school did so with 3 Grade As and the proportion that did so with a higher or lower grade profile. This would support teachers in providing realistic and evidenced advice to their students and reduce the confusion and ambiguity about the selection process that many students experienced. In a similar vein, teachers also felt that medical school websites were not very user friendly and information about the process of applying needed to be made more accessible on university websites. They wanted online resources for medicine that were designed for them to easily access and share with students.

"….the hierarchy of what they are actually looking for. Do you value the BMAT over the GCSE score? Do you value work experience over this type of work experience? Like a real hierarchy."

"Something that we can maybe share like an online, share bits online, where we can share that to the medicine students. Where they are talking in detail about what they mean when they say challenge, what that should look like to the students, what they expect from them, could be helpful, anything that's an online resource is really useful for us to share.

Quotes from teacher focus group participants from the state comprehensive sector regarding support and resources that they think would be useful for medical schools to provide to them for their students.

"What weight do you give to a personal statement? How much weight do you give to voluntary work? There are some universities that prioritise voluntary work far more over a work placement. Does the personal statement even matter, or because you are going to interview them, you don't care. That would be quite useful to know"

Quote from teacher focus group participant from the independent sector regarding support and resources that they think would be useful for medical schools to provide to them for their students.

Another similarity with the student responses was regarding clearer explanations of on-course teaching and learning. Teachers felt that they would be in a better position to support students, both in terms of selecting medical schools and in terms of preparing to transition, if medical schools clearly laid out what comprises the teaching styles at their medical school and what is required of students in terms of independent study etc.

"….be more about preparing them to be a medical student than being a doctor. They are going to have to sit in lectures for a long time, you don't walk in and on the job train from day one, on most of the pathways, so that reality…[of teaching styles]"

Quote from teacher focus group participant from the state selective sector regarding information about teaching styles at medical school.

Aspects that were raised by teachers but not by students included using outreach activities to provide a realistic view of what studying and practicing medicine really entails rather than to "glorify" the role of a doctor and to support the voice of teachers in encouraging students to have a backup option. State comprehensive school teachers also requested guidance/resources from universities in terms of how to support their students to understand/improve upon their independent study skills. Interestingly, they also asked that details of graduate outcomes be made available, particularly for students that came in with lower entry grades, so that, again, this could be used to support students' decision-making.

"So getting them to kind of build in independent study and what that actually means. I think it would be helpful to know how to support them more to be able to study by themselves."

"If they could give us maybe in terms of, I don't know, their grades and maybe their exit routes [graduate outcomes], because I guess maybe you might accept students with lower offers, but how successful are they on the actual course?"

Quotes from teacher focus group participants from the state comprehensive sector regarding support and resources that they think would be useful for medical schools to provide to them for their students.

"Another thing I think would be helpful is for the taster days to focus less on, you can do this, and more on, you will have to do this, in other words, how much work…[so the reality of how much work is involved in medicine]….[so] students who don't want to work now, going 'ah!'… but if you, but when they go to taster days, and they go to hospitals and everyone is terribly nice to them… [they don't see the reality of how much work it is]."

Quote from teacher focus group participant from the state selective sector regarding support that they think would be useful for medical schools to provide for students.

Overall, the teachers broadly agreed with the responses of students, discussed earlier in this chapter, and provided interesting contextual perspective to several things that had been raised as issues by students. State comprehensive schools generally do not have the resources to support students wholly and accurately with applications to medicine, which is apparent to the students it affects and in the challenges they face. Medical schools should not assume that all schools have a knowledge of the application process for medicine or that they accurately pass this on to their students. Although there is a lot of information that is made available on the process, students from the state comprehensive sector are more likely to need support with sourcing and digesting this information because they are less likely to have been exposed to opportunities to enhance their research skills and ability to read around a subject. Medical schools need to work with the school sector more closely to ensure that they are not automatically excluding the students they are most wanting to attract, by expecting things from them that they simply have not had the opportunities to experience. Considering how to make the medical school application process truly inclusive will be an important next step in improving diversity and reducing the challenges of widening access in medical education.

2.4 Summary

This chapter was the first results chapter of this thesis and covered qualitative and quantitative findings of the pre-entry experience of students making their decisions about Higher Education and experiencing the process of applying to medical school. It also considered the perspectives of school teachers and careers advisors on the same topic to provide some helpful further context to student responses.

It is evident that all students, regardless of the educational sector they are applying from, struggle with various aspects of the application process for medicine, though to varying degrees and perhaps for different reasons. Similarly, there are a number of challenges that teachers face in supporting their students with the process. This correlates with findings from Alexander et al (2021) who found that teachers' attitudes towards supporting, or otherwise, applicants to medical school were influenced by material constraints in their

schools and the perception of daunting, long and emotionally difficult admissions requirements with low chances of success.

Whilst some of these challenges may be seen as essential parts of the process that help students to determine their own suitability for applying to medical schools, other challenges seem to be unnecessarily arduous and should be of concern to medical schools. For example, navigating information about the admissions process, selection criteria and understanding the teaching styles for each medical school should not be such a challenge for students and the school/college staff that support them. The Medical Schools Council annually collates this information and publishes it (https://www.medschools.ac.uk/news/2024-entry-requirements-for-uk-medical-schools-published) but it seems that not everyone is aware of this. Medical schools could perhaps promote this publication more on their own websites/as part of their outreach etc. so that students are not relying on third party websites such as the Student Room to get the most accurate information. This is further discussed as a recommendation in Chapter 5 of this thesis.

In relation to decision-making, participants in the one-to-one interviews and student focus groups, in many cases, had a perception that students do not receive the support that they need to make informed decisions about their future. To interrogate this perception further, some questions in the questionnaire were framed around access to information and support. When asked *'Are you confident you have had access to all the information you need to make an informed decision on your Post-18 options?'* responses from questionnaire participants in both sectors were broadly similar, with 45% of state comprehensive and 50% of state selective and independent sector respondents replying that yes, they had (see figure B2 in Appendix B for a full breakdown of responses). Whilst it is reassuring that both sectors had similar perceptions, it also suggests that approximately half of all students think that they do not have, or are not sure that they have, access to all of the information that they need to make informed decisions about their post-18 options. A similar set of questions in the questionnaire indicated that state comprehensive sector students were slightly more likely to suggest that they had not received any support, or could not articulate the support they had received, than their state selective and independent sector counterparts. This should be a concern for the sector more widely, as well as for widening access to medical education.

It is also a concern with regards to students applying for, and hopefully attaining a place on, courses that they do not understand, and regarding which they cannot make an informed decision regarding whether the style of teaching and learning is what is best suited to them. Respondents may have been struggling with the "right fit" aspect of their decision-making

precisely because they had difficulties accessing information about course structure and/or understanding what it meant in practice.

There is also a challenge around the number of days taken out of school to prepare for and sit entrance tests and attend interviews, on top of potentially attending several open days and applicant days. Whilst this may seem like a test of time-management and organisational skills, there appears to be an additional challenge faced by students, in the pressure from and on teachers in managing this aspect and dissuading students from taking too much time out. There needs to be a better and clearer relationship between medical schools and teachers to work together on supporting medical applicants to participate in all aspects of the selection process. There are also cost aspects to all of these different activities which provide a greater a challenge for some students than others.

But of most concern with respect to all students should be the mental wellbeing aspects of the application and selection process. Students feel under pressure to balance a number of different elements to make them stand out as an applicant and still perform to an exceptionally high standard academically, all in a very short space of time. For state comprehensive sector students this tends to be amplified by having additional personal commitments such as part-time work to financially support themselves/their families and having fewer personal connections to facilitate IAG and work experience opportunities. Additionally, the stress of an earlier application deadline but usually a much later offer than other degree programmes, adds further stress for students already feeling under pressure to perform. Whilst it may seem that these stressful elements cannot be entirely avoided, medical schools should consider how they might be able to work with schools and colleges better to support the mental wellbeing of applicants and ease the pressures they face. This is discussed further as a recommendation in Chapter 5 of this thesis.

However, it is also clear that there are a number of perceived additional challenges or challenges that are exacerbated for students from the state comprehensive sector, including access to accurate IAG and dedicated support from their schools, which often resulted in later awareness of aspects of the selection criteria and left them with more to do in a shorter space of time. The likelihood of them having fewer direct links to networks that may support them in accessing relevant work experience further intensifies the pressures and challenges they experience. Medical schools need to be aware that there are vast differences in the IAG and educational opportunities available to students from the state comprehensive sector, which teachers have also confirmed, that put them at a disadvantage to their peers in the state selective and independent sectors. Making information available isn't enough to

make the application process equitable. Proactivity and support to understand the information is also required for state comprehensive sector students and medical schools should avoid taking an assumption of knowledge approach to the information, resources, and marketing materials that they develop.

2.5 Future studies

This chapter has identified a number of areas where further investigation would be useful to add to understanding of the challenges of widening access to medical education.
Where this study has used state comprehensive school respondents as a de facto representation of historically under-represented students in medical education, it would be useful for a future study to target more specifically within the state comprehensive cohort to identify students with all the demographic markers that would class them as historically under-represented to confirm that the findings are an accurate representation of the students we are trying to support with this study.

In section 2.3.1, which focused on the challenges of navigating the post-18 landscape, we found that there was a fairly consistent proportion of students who make their decisions at a young age and stick with those decisions. It would be useful for a future study to be able to track these students to see whether they are proportionally more likely to attend more selective universities/courses as the UCAS report (2016) discussed in Chapter 1 suggests, or whether there is no significant advantage compared to peers who made their decisions at a later stage.

When looking at the challenges that students faced in the application process, it was identified that state selective and independent sector students were more likely to find balancing their commitments and time management more challenging than students from the state comprehensive sector. We were unable to glean from a questionnaire format, whether the reason for this was because students from the state selective and independent sector have more commitments to try and balance or whether state comprehensive students are more adept at doing so. It would be interesting for a future study to investigate this to better understand whether there are trends in students' relationships with time management.

For those questionnaire respondents who had been through the experience of applying to university, there were a number of negative (and some positive) reflections on the process, particularly in relation to the impact on studies and mental health. Due to the nature of the format, it was not possible to unpack these reflections although the mental wellbeing aspects of medical school application process were prevalent in responses from the various data

capture methods. It would be useful for a future study to focus on the reflections of Year 13 students who have just been through the process to understand the impacts of the application process, both in terms of impact on studies and on mental wellbeing.

Reflections on the interview and selection process investigated in section 2.3.3 revealed that, in Years 11 and 12, students from the state selective and independent sector were proportionally more likely than state comprehensive sector students to say that the entrance tests and interviews were difficult. This is an interesting observation and a contrast from the perception that state selective and independent sector students may perceive the entrance tests and interviews as being easier than their counterparts due to greater access to support/resources. Future studies may wish to investigate this phenomenon and whether having greater access to resources, paid for courses etc., and therefore a greater awareness of what the tests and interviews entail, are actually the reason why state selective and independent sector students perceive them to be more difficult or whether there are other causes.

Interestingly, however, the tables turn in Year 13 and students from the state selective and independent sector who had had experience of interviews for medical school (either panel or MMI interviews) were more likely to talk of it as a positive experience than their counterparts from the state comprehensive sector. Future studies may wish to further investigate this to understand if there is any correlation between the support students receive in preparing for interviews and whether they experience the process as positive or negative.

Section 2.3.6 looked at the factors in choosing to pursue a medical education. Although effort was made to encourage participation in this study from students who had shown the academic potential to apply for medicine but had chosen not to go down that path, engagement from this group was lower than hoped. Medical schools need to be able to consider what they can do to encourage and support a more diverse student body, particularly those that are making the necessary progress academically but may not be able to access the resources or accurate information to make an informed decision about choosing to pursue medicine. They also need to be able to better understand what they can do to build trust with these students where there is a lack of clarity or transparency in the admissions and selection process which is deterring students and/or their key influencers. Future work might specifically investigate in more depth key stage 5 students from the state comprehensive sector and/or who are historically under-represented in medicine who could (i.e., are taking the relevant subjects) but have chosen not to pursue medicine. This would help to build a more accurate picture of the factors deterring these students away from

studying medicine and what medical schools could do to support and encourage them to give the vocation due consideration. A similar study could also be run with key stage 4 students to understand what deters students from medicine at such a young age.

When looking at students' experiences of meeting the requirements to successfully enrol on to a medicine programme, despite several narratives (including within the findings in this chapter) stating that historically under-represented students found it very challenging to find work experience placements within healthcare, it was interesting to note that students from all educational sectors had undertaken clinically relevant work experience as part of their applications to medical school. It would be useful for a future study to explore this further and understand whether widening access and outreach programmes have an impact on this outcome for students from the state comprehensive sector. Given the range of experiences undertaken, it would also be useful for medical schools to assess the value of work experiences in terms of how successful they are in providing students with a realistic view of the profession.

In the teacher focus group, discussed in section 2.3.8, it was raised that students were likely to make a decision to pursue medicine at an early age due to either familiarity with the profession compared to other professions and/or due to parental pressure. However, it was also noted that teachers felt that in a majority of cases this decision wouldn't necessarily be a student's final choice. Although this was not covered in the focus group, it would be useful, from a widening access perspective, for a future study to investigate this phenomenon and whether there are any differences in the proportions of students that change their mind between school sectors and what influenced that decision.

Another aspect raised in the teacher focus group was around the role of teacher as disciplinarian vs role of teacher as careers advisor and whether students disregard the latter due to the former. This is an interesting challenge that future studies may wish to unpack further with students.

2.6 Interim recommendations

Chapter 2 has provided us with several interesting results and informative findings. This section brings together the recommendations that have been identified from this chapter.

In section 2.3.1.2, looking at the challenges in the application process for medicine, findings indicated that students struggled to understand the course structures at medical school.

Medical schools are recommended to review how their course structure information is communicated to pre-applicants and applicants for clarity and transparency.

Section 2.3.1.3 focused on support students received and/or found helpful for the application process to medical school and supports a number of recommendations. Medical schools are recommended to consider how to make opportunities such as open days, which students found as very valuable to their decision making, more accessible to ensure that all who wish to are able to engage with the experience. This may require working with applicants and/or schools and colleges to understand the barriers to attendance.

In a similar vein, medical schools are recommended to consider how they can work more closely with key influencers of students and/or improve communication with key influencers to ensure that students are able to quickly and easily access up-to-date and accurate information on the medical school application process and support for applicants. This recommendation includes reviewing marketing and website content and design.
Outreach and widening access practitioners are recommended to consider how they can directly support students from historically under-represented backgrounds, and state comprehensive schools more generally, with advice on all aspects of the application cycle and processes for medicine, including the minimum and non-standard requirements for applying to medical school.

Section 2.3.2 looked at the application process itself and identified challenges that students had highlighted in undertaking the process. Medical schools and the MSC are recommended to review the feedback and support that they are able to provide to students who are not given an offer and/or are in receipt of no offers at all for medical school. Whilst detailed feedback to such a high volume of applicants for medicine may be unfeasible, there may be more that medical schools can do to provide feedback (e.g., providing decile rankings across a range of interview criteria so they can identify areas for improvement) and/or developing resources on how to manage mental wellbeing pressures in anticipation of application outcomes and in the face of a negative outcome. There is also scope to develop a more formalised resource for options if students receive no offers for medical school.
With regards to the stress caused by the lengthy waiting times, it is recommended that medical schools should make their timeline for assessing medical school applications transparent as a pre-application resource and investigate whether the cycle could be simplified or synthesised so that medical school applicants aren't waiting up to 5 or 6 months for responses and can then focus on their studies.

Section 2.3.3 focuses on the interview and selection process and provides two key recommendations. Medical schools are recommended to review their timetabling and communications around attendance at selection interviews and the timescales involved. Whilst some medical schools may be particularly looking at applicants' abilities to multitask, scheduling clashes and reticence from the school to allow additional time off for applicants to engage in the process (particularly where they may need to attend open days/interviews at multiple institutions) is not a multitasking issue and medicals schools should do as much as they can to minimise the challenges that applicants face from their school in taking time off during term time. Whilst there is no 'easy fix' to this, particularly as times that are convenient for students are likely to conflict with staff availability, if medical schools are able to provide more transparency in the expected commitments and timescales for their recruitment and selection processes, this may help applicants and their schools in negotiating an individual student's school commitments/deadlines to support their participation in the selection process.

Medical schools should consider not just what they are asking of students as part of the application process but how they ensure that students are not disadvantaged if they are only able to fulfil the minimum extra-curricular requirements rather than above and beyond.

Section 2.3.4 investigated the overall experience of undertaking the application process for medical school. A majority of respondents from the state comprehensive sector to the questionnaire, did not feel their preparation materials for entrance tests had been useful. As entrance tests are a key element of the selection process for medical schools, this is an issue that should be given more attention to consider the potential impact on efforts to widen access to medical education. It is recommended that medical schools consider whether it is possible to provide greater support to state comprehensive sector applicants on this aspect of the selection process.

In respect of the selection process, and in particular the entrance tests, there is a perception (but no strong correlating evidence) that paid for resources and/or support put applicants who can afford them at an advantage. Medical schools are recommended to consider what they can do to support applicants to be fully confident that the selection process for medical school is fair, transparent and does not advantage those that are in a position to pay to be 'trained' in the various elements of the process.

In relation specifically to the interview aspect of the process, it is recommended that medical schools undertake a review to consider and assess how much weight, consciously or

subconsciously, is given to the ‘performance’ aspect of interviews versus the knowledge aspect, and how their interview panellists/assessors are trained in this respect. It is also suggested that, if medical schools are trying to widen access to medical education, they should consider how they might support or facilitate access to interview practice for students from the state comprehensive sector who are more likely to struggle to source appropriate mentors or support.

In section 2.3.5, which focused on the transition to university, some students highlighted that they felt they would have been better mentally prepared for the teaching and learning styles at medical school if they had been provided with more information prior to the commencement of their studies. Medical schools are recommended to review the timeliness of information accepted students receive and whether students may benefit from having some institution-specific information earlier than they currently access it.

In reviewing the factors influencing the choice to pursue a medical education in section 2.3.6, medical schools may wish to consider how transparent they are about the level of work experience that is generally offered by applicants who are then successful in receiving an offer, and how this is assessed and weighted in the application process. There is also some wider work required across the sector to support applicants who are struggling with accessing work experience placements

Section 2.3.7 considered the factors involved in successfully meeting the requirements to enrol at medical school. It is recommended that consideration is given by the sector as to how medical schools can provide clarity and build trust in what they genuinely look for in terms of extra-curricular activities/volunteering. It is one thing to say that hospital work experience is not an essential requirement but it is unclear whether admissions statistics show that a large majority of applicants who get an offer to study medicine have undertaken work experience/volunteering in a hospital setting. Identifying opportunities that all applicants can access and which allow equitable assessment/comparisons to be made from, may help. Universities/outreach teams may also wish to look at support with accessing work experience and/or volunteering opportunities and whether it is possible to develop more opportunities for current students to share their own experiences and tips on managing key stage 5 and extra-curricular activities.

Section 2.3.8 reflected the viewpoint of the teachers and careers advisors that support applicants to medical school and suggests a number of related recommendations.

It became evident from discussions with this group that there were vast disparities in the resources and support that schools were able to provide to their cohorts of medical applicants. It is recommended that medical schools consider what further support they could offer to potential applicants from under-resourced schools so that they are not disadvantaged in their application by inaccurate/out-of-date information from their school. It would be useful to consider whether splitting outreach and widening access activities, so that aspiration activities are targeted at younger years (key stage 3) and more IAG-focused activities and exposure to lab and clinical opportunities are targeted at older years in key stage 4 and 5, may help to reduce the challenges that teachers see for their students. It is also recommended that medical schools work with the school sector more closely to ensure that they are not automatically excluding the students they are most wanting to attract, by expecting things from them that they simply have not had the opportunity to experience. Considering how to make the medical school application process truly inclusive will be an important next step in improving diversity and reducing the challenges of widening access in medical education. If medical schools truly want to eradicate the perception of elitism that is held by many of the group that they are trying to attract with widening access initiatives, they will need to critically assess their own approaches to the selection process including the diversity of the panels they use for this process and how their homogeneity may impact and influence the offers that are made. There is a danger that this could be perceived as tokenism but this can be avoided by ensuring, as many medical schools already do, that selection panels should receive training to diversify their thinking and assumptions.

Further considerations and recommendations related to these findings are discussed in Chapter 5. The next chapter will focus on Phase 2 of the medical education lifecycle, using quantitative data to understand the impact of socio-economic background on offer and entry rates to UK medical schools which use different entrance tests.

Chapter 3:

Investigating the demographics of applicants and entrants to UK medical schools

Introduction

This chapter continues this project's analysis of the student journey through medical education, focusing on the application and offer phase, and using quantitative data to investigate the relationship between socio-economic demographic data, medical school entrance exams and application to offer rates. It utilises five different metrics commonly associated with deprivation and/or disadvantage as indicators of WP, with an aim to measure how and where they overlap and whether they provide similar narratives on the performance of medical schools in widening access. Medical schools are categorised by the entrance assessment that they use, allowing investigation of whether there are any trends between WP applicants and the type of entrance test/medical school that they apply for and their success rates in achieving offers. The data was categorised in this way to determine whether there was quantitative evidence to support the concerns and issues raised in Chapter 2 in regards to WP students' perception of accessibility and difficulty of the different entrance assessments and the medical schools that use them.

3.1 Developing a national picture of medical school applications and entrants

This chapter offers an overview of the national picture of applications and admissions to UK medical schools using data made available from UKMED (UKMED, 2021). UKMED is the UK Medical Education Database, controlled by the General Medical Council (GMC) which comprises the following data for all medical schools in the UK:

- Details of applicants (including non-sensitive application details from student UCAS application forms) to UK medical schools, whether successful or unsuccessful, via an agreement with UCAS;
- Outcomes of any additional entrance exams applicants have undertaken with BMAT, GAMSAT and/or UCAT via agreements with the organisations/consortia that deliver these tests;
- Details of successful applicants who then commence their studies at UK medical schools, via an agreement with HESA;
- Progression information for students: whether a student continued and completed their studies at the medical school with which they started, whether they decided to discontinue their medical education or whether they transferred to an alternative provider during the course of their studies. These details are again provided via an agreement made with HESA;

- Post-graduation data: details of applications to the UK Foundation Programme, including applications to Foundation, Core and Speciality training and whether applicants attained their first choice placement, are also available.

This data allows tracking of a medical professional from medical school application through to postgraduate outcomes. Therefore, in addition to being able to track how students from historically under-represented backgrounds fare at the application stage, this dataset also allows assessment of whether they progress into and through medical school at a proportional rate to their peers and are accessing the same opportunities post-graduation.

As this dataset comprises information on applications and acceptances to all medical schools across the UK, comparisons between medical schools are also possible. Specifically, in the case of this thesis, it was possible able to investigate the variance in application and progress outcomes between students at medical schools using the UCAT admissions test as an assessment criterion for recruitment of students and medical schools that are using the BMAT admissions test as an assessment criterion for recruitment of students. Within the timeframe being used for this project, there were also some UK medical schools that did not use any additional entrance examinations to assess their medical undergraduate applications and so a third category of "non-testing institutions" was included as an additional comparator. This allowed assessment of whether either the UCAT or BMAT admissions tests were a better indicator of success for students from historically under-represented backgrounds than non-testing in regard to receiving offers for a place at medical school, attaining a place at medical school and likelihood of continuing with their studies beyond the second year of the programme. In the small number of cases where an institution changed from using one admissions test to the other (or from non-testing to using a test), this was accounted for by splitting their data into the relevant admissions test type by year of application.

The UKMED database is controlled by GMC but is housed in a safe haven administered by the Health Informatics Centre at Dundee University. Access is granted by submitting an application to the GMC detailing a research project plan and intention of data usage. Once approved, data is accessed via the safe haven. The Medical Schools Council concurred that all approved projects accessing and using the UKMED database would be exempt from requiring ethics approval and that this exemption would be recognised by all the ethics committees of all UK medical schools. Application number P57 was submitted to the GMC and approved as a research project in September 2017. Data was then made available in

September 2019 once the UKMED database had been populated with UCAS application data and updated in January 2021.

Analysis was undertaken using SPSS version 25 via the safe haven. Output was then checked to ensure it abided to protocol and transferred by the safe haven team to allow access to the anonymised analysis outside of the safe haven.

This thesis investigates three elements of the medical school lifecycle using UKMED data. Elements One and Two are outlined below, Element Three is discussed in Chapter 4.

- Element One investigates whether students from historically under-represented backgrounds are more, less, or equally likely to apply to and receive offers from medical schools that use either the UCAT or BMAT admissions tests or those that don't utilise any additional admissions tests as part of their admissions criteria. This element focuses on the proportional number of applicants from historically under-represented backgrounds that apply to institutions using the UCAT admissions test versus the proportional number that apply to institutions using the BMAT admissions test or institutions not using additional admissions tests. This is followed up further with an investigation into what proportion of these students are then made offers at institutions using each type of admissions test criteria. This analysis allows us to identify whether institutions using the UCAT admissions test or the BMAT admissions test or those that do not use additional admissions tests attracted proportionally more applicants from historically under-represented backgrounds and whether either admissions test, or lack of admissions test, is a marker for propensity to make an offer to students from this demographic.

- Element Two investigates the proportion of students from historically under-represented backgrounds that accept their offer of a place and commence their studies at medical schools using the UCAT admissions test versus the proportional number that accept their offer of a place and commence their studies at institutions using the BMAT admissions test or at institutions that don't utilise any additional admissions tests as part of their admissions criteria. This analysis allows us to measure whether institutions using the UCAT admissions test or the BMAT admissions test or those that do not use additional admissions tests have a better conversion rate with students from historically under-represented backgrounds.

The rationale for looking at application, offer and conversion rates by type of admissions test (i.e., UCAT, BMAT or no test) was not to ascertain differences between the tests themselves but to investigate whether there is a difference in the demographics of the people who take them, and whether in students who do take the tests, different demographic groups are more successful regarding their application to study medicine. Responses to the survey discussed in Chapter 2 indicated that there was a perception of elitism with the BMAT test and that students from historically under-represented backgrounds often felt that they were discouraged from sitting the BMAT. By looking at application, offer and conversion rates by the type of admissions test taken, it was possible to investigate whether the quantitative data supported these perceptions from the qualitative data. There is also a cost involved in sitting both tests which should be acknowledged as a potential consideration for potential applicants from low socio-economic backgrounds. Although there are bursary schemes available for candidates who meet specific WP criteria, there is no data available (and it is beyond the scope of this thesis to investigate) regarding whether eligible students necessarily know they are eligible for funding or whether the process of applying for this funding represents an additional barrier to these students.

Adding to the complexity, the BMAT is used by a smaller number of institutions. Historically, these tended to be higher tariff institutions, including Oxbridge and Imperial College London, and qualitative data collected in Chapter 2 indicates that teachers and students still tend to assume that it is only used by higher tariff institutions. However, for time periods covered by the current analyses, a range of institutions used the BMAT admissions test (personal communication, Cambridge Assessments) and so, as with the institutions that use UCAT, this group of institutions cannot be deemed homogenous. The choice of students to apply for institutions is, of course, not based entirely on the admissions test they use, and there may be a number of reasons that the demographics of students applying to BMAT and UCAT institutions may vary.

3.1.1 Limitations of study

Due to the data sharing agreements UKMED has in place, there are some limitations to the analysis undertaken in this chapter. The amount of historical data available varies based on what has been agreed in the data sharing agreements with the relevant source organisation. For example, more years of historical data are available for student and medical graduates than for applicants who were unsuccessful in their bid for a place at medical school. Similarly historical UCAT examination data is available for a greater number of years than BMAT examination data. There are also cases of missing data where, for example, it has not yet been received for a particular year from the third-party organisation or, in some

cases, where permission has not been granted by the individual themselves. Where data has been looked at discretely, we have used as much data as is available relevant to the parameters of our project. Where comparators are necessary (e.g. UCAT versus BMAT scores), we have used as much data as is equally available for all variables feeding into the analysis.

Each WP metric was not always available for each individual record, so the number of records included per WP metric varied in each set of analysis. Overall, the number of missing records was relatively small, with only 0.34% of the pre-entry application entries and 4.02% of the acceptance and drop out entries lacking all WP metric data. Table E1 in Appendix E provides the proportion of missing metrics data in the dataset used for Element One and Table E8 in Appendix E provides the proportion of missing metrics data in the dataset used for Elements Two and Three. Overall, out of 130,620 records, there were 12,876 records (9.85%) missing at least one form of metric from the Element One dataset and, out of 66,160 records, there were 7,084 records (10.7%) missing at least one form of metric from the Element Two dataset. However, as long as at least one metric was available, the record was included. Tables E2 and E9 in Appendix E show the proportion of missing data per individual metric for Element One and Elements Two and Three respectively. The largest group of missing data for all elements was for IDACI and TUNDRA metrics. IDACI data was missing from 6.57% of records in Element One and 9.78% of records in Elements Two and Three. TUNDRA data was missing from 8.34% of records in Element One and 9.53% of records in Elements Two and Three. To investigate whether the missing data was likely to be missing at random, the distribution of the remaining WP quintiles/categories was compared between those records with and without missing WP metrics. Tables E3-E7 in Appendix E show the distributions for both across each WP metric for Element One and Tables E10-E14 show the distributions for Elements Two and Three. The distributions were similar for each WP metric, suggesting that the missing WP values were missing at random and thus that there was unlikely to be any significant bias caused by its omission. It was therefore felt that imputation was unlikely to provide additional insight into the datasets.

UKMED collect data from third-parties (for example, UCAS and HESA) and there is usually a lag in getting the data and uploading it into the UKMED portal, therefore this study focuses on applicants and entrants to UK medical schools from 2007-2016, as 2016 was the latest year, at the time of analysis, with a significant amount of data available. Similarly 2007 was the earliest year for which a significant amount of data was available.

Due to UKMED's data sharing agreement with HESA, all headcount figures must be rounded to the nearest 5 and so numbers may not exactly reflect the actual figures. This rounding effect was considered too small an effect to significantly influence the interpretation of the datasets analysed. An additional requirement is that percentages based on fewer than 22.5 individuals are suppressed. This affected a very small amount of data and is highlighted where this has been the case.

3.2 Outline of WP metrics used for UKMED project

This chapter represents the first time in this thesis that we breakdown socio-economic demographics to identify students from historically under-represented backgrounds rather than just looking at the educational background of students. The data held by UKMED are individual records per person and includes their home postcodes (though these are not shared with safe haven users). This means that we are able to attach socio-economic metrics widely used by WP teams and the OfS to measure a student's level of disadvantage or WP status, to each record on UKMED so that we can identify if they are categorised as 'WP' or 'Non-WP.'

There are five main metrics of WP status that have been used in both Element One and Two of the UKMED study.

- IMD: The Index of Multiple Deprivation (IMD) is the official measure of relative deprivation for small areas in England. The IMD ranks every area in England categorised as 'small' from 1 (most deprived area) to 32,844 (least deprived area). The IMD combines information from the following seven domains: income deprivation; employment deprivation; education, skills, and training deprivation; health deprivation and disability; crime; barriers to housing and services; living environment deprivation, not all weighted equally, to come up with IMD scores. (Ministry of Housing, Communities and Local Government, 2019) IMD is classified into quintiles, where IMD quintiles 1 and 2 are marked as an indicator of disadvantage.

- POLAR3: The Participation of Local Areas (POLAR) classification groups areas across the UK based on proportion of young people who participate in HE. It looks at how likely young people are to participate in HE across the UK and shows how this varies by area. POLAR is classified into quintiles, where POLAR quintiles 1 and 2 are marked as the lowest rates of participation and thus an indicator of disadvantage.

(OfS, 2019) Please note, this project uses POLAR3 (i.e. version 3) for the purposes of analysis. Although POLAR4 has since been released, POLAR3 is the version that was being used to measure WP status by WP teams and medical schools' admissions teams in the timeframe that is being considered in this project.

- IDACI: The Income Deprivation Affecting Children Index (IDACI) is a supplementary index to the IMD that uses a subset from the income deprivation domain. It measures the proportion of all children in England aged 0-15 that are living in income deprived families. (Ministry of Housing, Communities and Local Government, 2019) IDACI is classified into quintiles, where IDACI quintiles 1 and 2 are marked as an indicator of disadvantage.

- TUNDRA: The Tracking Underrepresentation by Area (TUNDRA) is an area-based measure that uses tracking of state-funded mainstream school pupils in England to calculate young participation. It is an experimental dataset released by the OfS in September 2019. (OfS, 2020a) TUNDRA is classified into quintiles, where TUNDRA quintiles 1 and 2 are marked as an indicator of disadvantage. Although TUNDRA is not a metric that would have been used by WP teams and medical schools' admissions teams in the timeframe being considered in this project, the OfS are intending to use it as a metric going forward so this project provides a good opportunity to assess how it compares with more established metrics as outlined in this section.

- ACORN: ACORN is a segmentation tool which uses significant social factors and population behaviour to segment UK households, postcodes, and neighbourhoods into 6 categories, 18 groups and 62 types. (CACI, 2021) ACORN is a commercial tool that has to be purchased and thus is not used as commonly as other metrics outlined above, though it does provide a more nuanced and holistic picture at a neighbourhood level than the measures outlined above. This is a metric used by Imperial College London's outreach team, who class categories 4, 5 and 6 as indicators of disadvantage, and so we were able to use it as part of this project by importing ACORN scores into UKMED. Again, it also provides a good opportunity to assess how ACORN weighs up against freely available metrics. Unlike the other measures outlined above, ACORN categories do not contain an equal proportion of the population – i.e. each category is not the equivalent of 1/6 of the population. It is important to be aware of this as the unequal weightings may have an effect on outputs. The proportion of the UK population in each category is as follows:

- Category 1 = 22.2%
- Category 2 = 8.7%
- Category 3 = 27.4%
- Category 4 = 23.8%
- Category 5 = 17.0%
- Category 6 = 0.9%

For the purposes of this chapter, the quintiles or categories that fall into a disadvantaged classification are labelled as “WP,” with the more advantaged quintiles and categories being labelled as “non-WP.”

Although all data requested for this project was housed in one large database, Element One used data provided by UCAS drawn from students’ UCAS application forms. Element Two uses data provided by the Higher Education Statistics Agency drawn from annual university submissions.

ACORN data was provided by the researcher using a postcode matching process and inputted into UKMED for inclusion in the dataset by UKMED staff.

In total the database that UKMED provided access to via the safe haven contained a total of 176,322 individual student records. How this data was used and any relevant inclusion criteria will be outlined separately for each element.

3.3 Element One results

Element One of the UKMED study uses UCAS data for applications between 2007-2016 to look at the application and offer rate of students based on whether they class as WP and the type of medical school that they apply to, by which we mean, whether it was a medical school that uses either the BMAT entrance test, the UCAT entrance test or is a non-testing institution. There were a total of 176,320 student records available from UKMED for students that had made an application to medical school between 2007 and 2016. Of these, 130,620 applicants were domiciled in the UK and thus had at least one WP metric available.

Figure 3.01 shows how total number of applicants are broken down by each type of WP metric and also how those applicants that received at least 1 offer of a place at medical school are distributed amongst each quintile/category for each WP metric.

Figure 3.01 shows that, across all metrics, applicants from the most advantaged quintile/category were over-represented in offer making and proportionally much more likely

to receive at least one offer of a place at a UK medical school. Across all metrics, applicants in the least advantaged quintile/category were the least likely to receive an offer of a place at a UK medical school. When comparing WP students against non-WP students, regardless of which WP metric was looked at, non-WP students comprised a greater, and WP students a smaller, proportion of applicants that received at least one offer of a place at medical school than the proportion of total applicants.

Figure 3.01

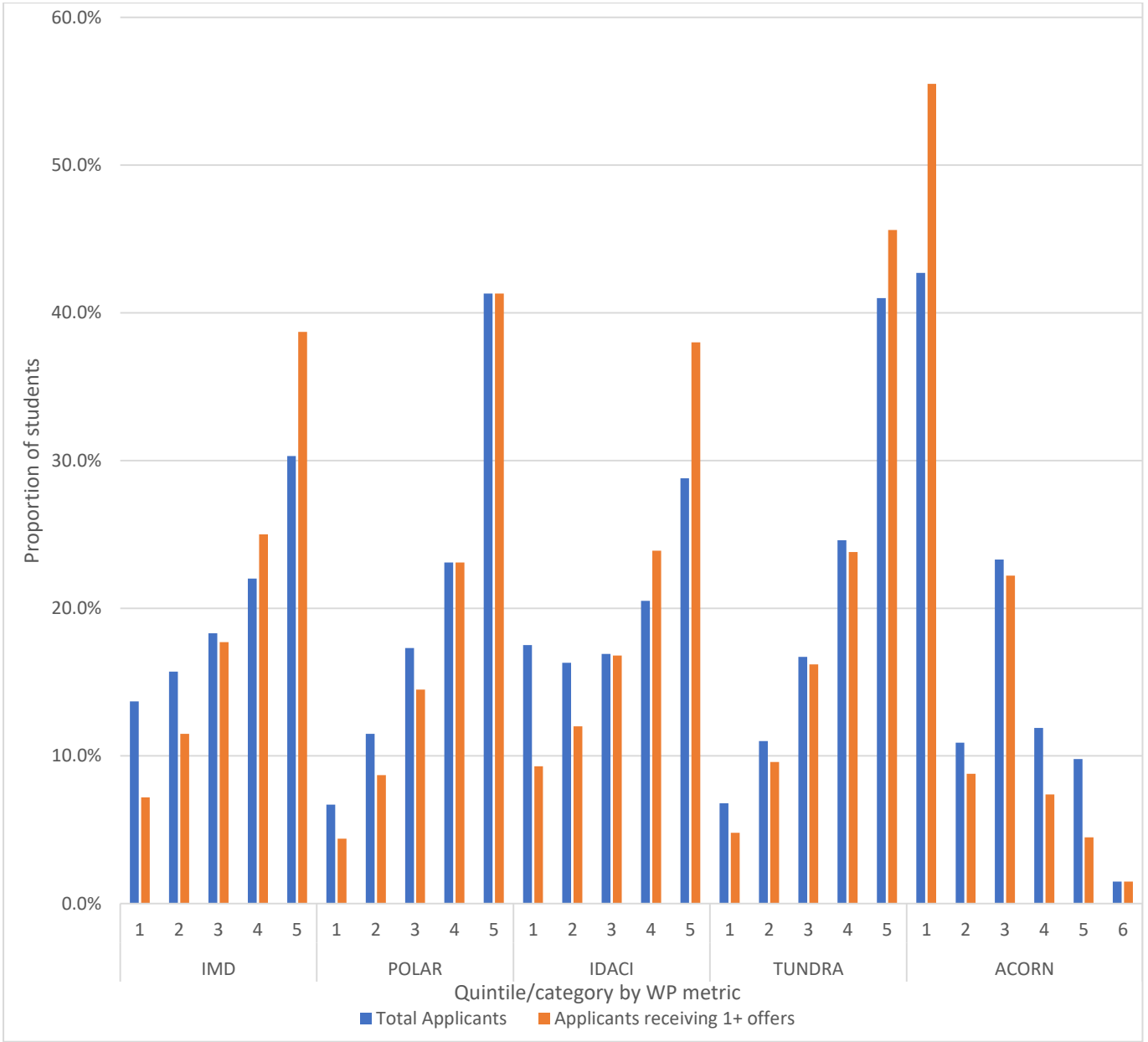


Figure 3.01: Applicant breakdown by quintile/category against each WP metric

Bar chart showing the percentage of UCAS applicants, between 2007-2016, within each quintile/category per WP metric. Blue bars depict total applicants (IMD, n =129,850; POLAR, n = 129,785; IDACI, n = 122,041; TUNDRA, n = 119,715; ACORN, n = 129,645). Orange bars depict proportion of all students who received at least one offer of a place at medical school within each quintile/category (IMD, n =53,595; POLAR, n = 53,555; IDACI, n = 48,054; TUNDRA, n = 47,160; ACORN, n = 53,525). ACORN categories 4-6 classify as WP students, for all other measures quintiles 1-2 classify as WP students.

However, this is not to say that all of the WP metrics work in the same way or show the exact same thing. Table 3.1 shows the total proportion of applicants classed as WP that applied and that received one or more offers of a place at a UK medical school for each of the WP metrics.

Table 3.1 – Proportion of WP applicants that received one or more offers of a place at a UK medical school, per WP metric

WP metric	Proportion of Total Applicants from 2007-2016 that class as WP	Proportion of Applicants that class as WP who received 1+ offers for medical school
IMD	29.4%	18.7%
POLAR	18.2%	13.1%
IDACI	33.8%	21.3%
TUNDRA	17.8%	14.4%
ACORN	23.2%	13.4%

There are some interesting differences in the offer rate for WP students based on the metric being used. Whilst POLAR and TUNDRA – the two most advocated and used metrics by OfS – both show fairly comparable rates of application and offer for WP students, IMD, IDACI and ACORN show much greater variance in the proportion of WP applicants that actually receive an offer. ACORN in particular shows that only half of the proportion of applicants that class as WP according to their metric, then receive at least one offer for medical school. This is useful to be aware of when looking at approaches to monitoring widening access as the success rate of conversion from application to offer-making for WP students could look very different depending on which metric is used.

Table 3.2 shows the significance values, odds ratios and 95% confidence intervals of the likelihood of receiving one or more offer of a place at any type of medical school (non-testing, UCAT-testing, and BMAT-testing) based on whether a student is classified as WP according to the five WP classifications outlined in section 3.2, relative to applicants who do not classify as WP in the same classification. These values were achieved using Poisson regression in SPSS version 25 on the HIC portal.

Table 3.2 – Significance values, odds ratios and 95% confidence intervals of the likelihood of WP applicants receiving one or more offers of a place at any type of medical school, per WP metric

WP Indicator	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
IMD	<0.0005	0.50	0.49	0.50
POLAR	<0.0005	0.63	0.61	0.64
IDACI	<0.0005	0.46	0.46	0.47
TUNDRA	<0.0005	0.70	0.68	0.71
ACORN	<0.0005	0.46	0.45	0.47

Dependent variable: number of offers received

As Table 3.2 shows, all of the p-values are highly significant. An applicant that classes as WP using IMD metrics is half as likely as an applicant that classes as non-WP, according to

their IMD classification, to receive one or more offers of a place at any type of medical school. POLAR and TUNDRA once again come out most favourably in terms of the success of widening access with WP applicants being 63% and 70% respectively as likely as their non-WP peers to receive at least one offer from a medical school. IDACI and ACORN shows the greatest disparity with WP applicants being just 46% as likely as their non-WP peers to receive at least one offer for a place at any UK medical school. There is a 24% difference in the odds ratio for WP students based on which WP metric you use. Whilst using the OfS-endorsed POLAR and TUNDRA measures may show signs of better applicant to offer conversion rates for WP students, this is unlikely to be an accurate picture when considering other factors of deprivation and likely to mask the real disparity faced by WP applicants.

To investigate this further, Table 3.3 shows the significance values, odds ratios and 95% confidence intervals of the likelihood of receiving one or more offers of a place at any type of medical school (non-testing, UCAT-testing, and BMAT-testing) per WP metric based on their quintile/category relative to applicants from the most privileged quintile/category (i.e. most privileged being quintile 5 for all metrics except ACORN, for which the comparator is category 1). This helps us to see whether the quintiles/categories used as indicators of WP, are equally disadvantaged with regards to their offer rates or whether there is variance within the WP category. The values in Table 3.3 were achieved using Poisson regression in SPSS version 25 on the HIC portal. As Table 3.3 shows, all of the p-values across all WP metrics are highly significant.

Table 3.3 – Significance values, odds ratios and 95% confidence intervals of the likelihood of applicants receiving one or more offers of a place at any type of medical school per quintile/category, for each WP metric

IMD Quintile	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
IMD 1	<0.0005	0.34	0.33	0.35
IMD 2	<0.0005	0.51	0.50	0.53
IMD 3	<0.0005	0.71	0.70	0.72
IMD 4	<0.0005	0.86	0.85	0.87
POLAR Quintile	**P-Value**	**Odds Ratio**	**95% confidence interval Lower Bound**	**95% confidence interval Upper Bound**
POLAR 1	<0.0005	0.48	0.47	0.50
POLAR 2	<0.0005	0.58	0.56	0.59
POLAR 3	<0.0005	0.65	0.63	0.66
POLAR 4	<0.0005	0.80	0.79	0.81
IDACI Quintile	**P-Value**	**Odds Ratio**	**95% confidence interval Lower Bound**	**95% confidence interval Upper Bound**
IDACI 1	<0.0005	0.34	0.33	0.35
IDACI 2	<0.0005	0.50	0.49	0.52
IDACI 3	<0.0005	0.70	0.69	0.72
IDACI 4	<0.0005	0.86	0.84	0.88
TUNDRA Quintile	**P-Value**	**Odds Ratio**	**95% confidence interval Lower Bound**	**95% confidence interval Upper Bound**
TUNDRA 1	<0.0005	0.58	0.56	0.60
TUNDRA 2	<0.0005	0.73	0.71	0.75
TUNDRA 3	<0.0005	0.82	0.80	0.84
TUNDRA 4	<0.0005	0.84	0.82	0.86
ACORN Category	**P-Value**	**Odds Ratio**	**95% confidence interval Lower Bound**	**95% confidence interval Upper Bound**
ACORN 2	<0.0005	0.57	0.56	0.59
ACORN 3	<0.0005	0.68	0.66	0.69
ACORN 4	<0.0005	0.41	0.40	0.42
ACORN 5	<0.0005	0.30	0.29	0.31
ACORN 6	<0.0005	0.77	0.73	0.81

Dependent variable: number of offers received

An applicant in IMD quintile 1, the most disadvantaged quintile, is only 34% as likely as an applicant from quintile 5 to receive one or more offers for medical school. This increases to 51% for applicants in IMD quintile 2, which also classes as a WP quintile. There is a 17% difference in the likelihood of receiving an offer for medical schools (compared to IMD quintile 5) between the two WP quintiles. The difference between the two POLAR WP quintiles is 10%, between the two IDACI WP quintiles is 16%, between the two TUNDRA WP quintiles is 15% and between the three ACORN WP categories is 47%. However, when looking in further detail at the values for the ACORN metric, you will note that the odds ratio for the most deprived category (category 6) is actually the highest of all the categories. If we return to figure 3.01, we see that this maybe because only 1.5% of total applicants belonged to ACORN category 6 and they also made up 1.5% of the offer rate. It is possible that the numbers have been skewed by a low n number in that category. So, although the offer rate

is proportional to the application rate, the numbers for both are, relatively speaking, much smaller than those for ACORN category 1 against which is the odds ratio has been calculated. But even between ACORN 4 and 5 (the other two WP categories for ACORN), there is an 11% difference in the likelihood of receiving an offer for medical schools (compared to ACORN category 1) between the two WP categories. These large differences between WP quintiles/categories is important to note as it shows that merging the categories/quintiles into "WP" and "non-WP" can obfuscate issues that are apparent at a more granular level. It also suggests that, wherever possible, WP metrics should be looked at by individual quintiles/categories and not just as WP versus non-WP. However, even when broken down into individual quintiles/categories, POLAR and TUNDRA find WP students to be more successful than other WP indicators in terms of the likelihood of receiving at least one offer for medical schools compared to their most privileged peers.

It should be noted that the applicants included in figure 3.01 and tables 3.1-3.3 have not been controlled for "eligible" grades and so, potentially, there may be a higher proportion of students categorised as WP that apply with a low grade profile or that have not undertaken the correct subjects etc. However, we can see from figure 3.01 that the proportion of applicants from the non-WP quintiles/categories is much higher across all WP metrics, suggesting more work is needed to encourage applications from WP students. The findings support discussions in Chapter 2 around better and earlier IAG support needed for state comprehensive sector students, who are the most likely to fall into WP quintiles/categories, both to encourage students from this sector to apply to medicine and also to support them to make a strong application if they do.

Further breakdowns of this data can be found in Tables C1-C5 in Appendix C where we can see the proportion of applicants and offer rate for each WP metric split by WP vs non-WP and the type of entrance test used by the medical school. Across all WP metrics, both WP and non-WP applicants were most likely to receive offers from UCAT-testing medical schools. This is perhaps unsurprising because more medical schools use the UCAT test so they will, proportionally, make more offers. However, the differences in offer rates between WP and non-WP students for each type of medical school (i.e. non-testing, UCAT-testing, and BMAT-testing) are marked across all WP metrics. BMAT and non-testing fare particularly badly with roughly half the proportion of WP students across all metrics receiving an offer compared to non-WP students. The ACORN metric in Table C5 shows the starkest differences between WP and non-WP offer rates across all three types of medical school.

Table 3.4 shows the significance values, odds ratios and 95% confidence intervals of the likelihood of receiving one or more offers of a place broken down by type of medical school (non-testing, UCAT-testing, and BMAT-testing) based on whether they classify as WP, per WP metric, relative to non-WP applicants in the same metric. These values were achieved using Poisson regression in SPSS version 25 on the HIC portal. As Table 3.4 shows, all of the p-values are highly significant.

Table 3.4 – Significance values, odds ratios and 95% confidence intervals of the likelihood of WP applicants receiving one or more offers of a place at each type of medical school, per WP metric

Type of Medical School	WP Measure	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
Non-testing	IMD	<0.0005	0.50	0.48	0.52
UCAT testing	IMD	<0.0005	0.49	0.48	0.50
BMAT testing	IMD	<0.0005	0.52	0.49	0.54
Non-testing	POLAR	<0.0005	0.70	0.67	0.73
UCAT testing	POLAR	<0.0005	0.63	0.62	0.65
BMAT testing	POLAR	<0.0005	0.52	0.49	0.55
Non-testing	IDACI	<0.0005	0.46	0.44	0.48
UCAT testing	IDACI	<0.0005	0.43	0.42	0.44
BMAT testing	IDACI	<0.0005	0.64	0.61	0.67
Non-testing	TUNDRA	<0.0005	0.77	0.74	0.82
UCAT testing	TUNDRA	<0.0005	0.69	0.67	0.71
BMAT testing	TUNDRA	<0.0005	0.65	0.62	0.69
Non-testing	ACORN	<0.0005	0.44	0.42	0.46
UCAT testing	ACORN	<0.0005	0.47	0.46	0.48
BMAT testing	ACORN	<0.0005	0.43	0.41	0.45

Dependent variable: number of offers received

In Table 3.4 we are starting to see some disparities between the WP metrics. Two metrics suggest that WP students have the best odds ratio of getting one or more offers from a non-testing medical school, two metrics suggest that WP students have the best odds ratio of getting one or more offers from a BMAT-testing medical school and just one metric suggests that students have the best odds ratio of getting one or more offers from a UCAT-testing medical school. The two measures formulated by OfS, POLAR and TUNDRA both suggest that WP applicants have the best chance of receiving offers from non-testing medical schools with 70% and 77% odds respectively, compared to non-WP applicants. With a

decreasing number of medical schools not using any form of entrance test, this is a concerning issue to be aware from the perspective of the OfS. According to POLAR and TUNDRA, OfS's two WP metrics, the most effective method of widening the pool of WP applicants that hold at least one offer for a medical school place is to not include the UCAT or BMAT entrance test. However, there are now no publicly funded medical schools that do not include some version of additional testing for applicants. Interestingly the two WP metrics that focus on deprivation, IMD and IDACI, both suggest that WP applicants have a greater likelihood of receiving offers from BMAT-testing medical schools, compared to non-WP applicants and ACORN, once again, stands alone to suggest that applicants have a greater likelihood of receiving offers from UCAT-testing medical schools compared to non-WP applicants.

However, regardless of which WP metric is used, Table 3.4 shows that WP applicants are significantly less likely to receive one or more offers from any type of medical school. As indicated in Chapter 2, although the entrance tests are often perceived as the most challenging or determinant factor by WP applicants in terms of not receiving offers of a place at medical school, there are clearly other aspects that impact the outcome of an application as non-testing medical schools also have significantly lower offer rates for WP applicants than non-WP students.

Further break downs of this data can be found in Tables C6-C25 in Appendix C which look at the effect of gender and ethnicity on offer rate and whether there is any intersectionality between WP metrics and gender or ethnicity across all medical schools holistically as well as at the three types of medical school (non-testing, UCAT testing and BMAT-testing) individually. In general, the data in Tables C6-C25 in Appendix C show that WP applicants were consistently less likely to have received offers overall and across all three types of medical school

As this thesis focuses on socio-economic factors that may affect an applicant's chances of achieving a place at medical school, trends regarding gender and ethnicity will not be discussed here in great detail.

3.4 Element Two results

Element Two of the UKMED study uses HESA data for entrants to UK medical schools, between 2007-2016, to look at the entry rate of students based on whether they class as WP and the type of medical school that they attend. Again by 'type of medical school' we mean, whether it was a medical school that uses either the BMAT entrance test, the UCAT

entrance test or is a non-testing institution. There were a total of 81,405 student records available from UKMED for students that had started their medical education in the UK from 2007 onwards. Of these 66,160 had started on a standard entry medical degree programme (e.g. not a graduate entry programme or foundation year programme) between 2007-2016. As the data for this element came from HESA and was merged with UCAS data, these records had two sets of WP metrics – one that came from UCAS and one that came from HESA (apart from ACORN data which was provided by the researcher) – and so, in order to decide which set of WP metrics to use for this analysis, the number of records available for each of the four WP metrics with double entries was checked. In each case, the UCAS record made more WP metric scores available than the HESA data and so the WP metric scores provided by UCAS were used for this analysis.

Figure 3.02 shows the total number of entrants to UK medical schools between 2007-2016, broken down by type of medical school attended according to whether they used the UCAT entrance test, the BMAT entrance test, or did not use any entrance test at the time of the application cycle.

Figure 3.02

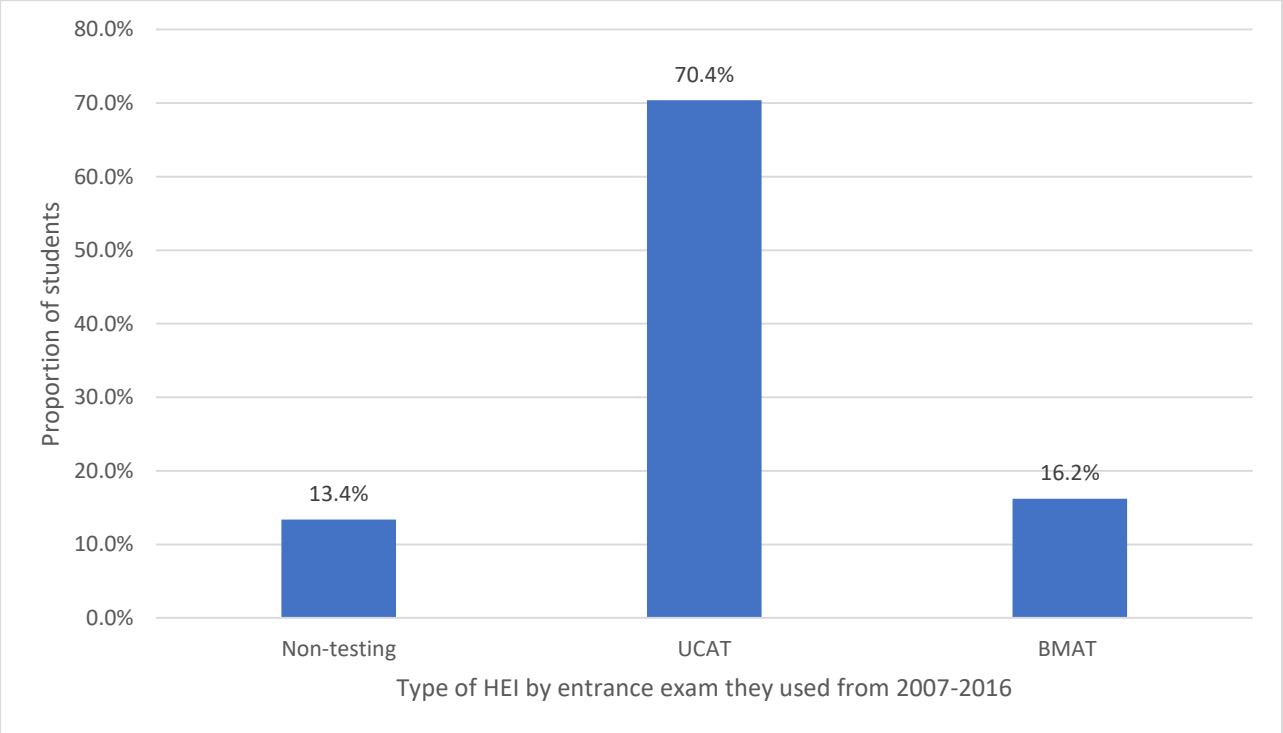


Figure 3.02: Breakdown of students entering medical school according to the entrance test used by the medical school

Bar chart showing the percentage of medical school entrants, between 2007-2016, within each type of medical school, according to the entrance exam used. Blue bars depict percentage of total applicants (Non-testing medical school, n =8,865; UCAT-testing medical school, n = 46,575; BMAT-testing medical school, n = 10,720).

Figures 3.03-3.07 show the breakdown of entrants to UK medical schools between 2007-2016 by each type of WP metric.

Figure 3.03

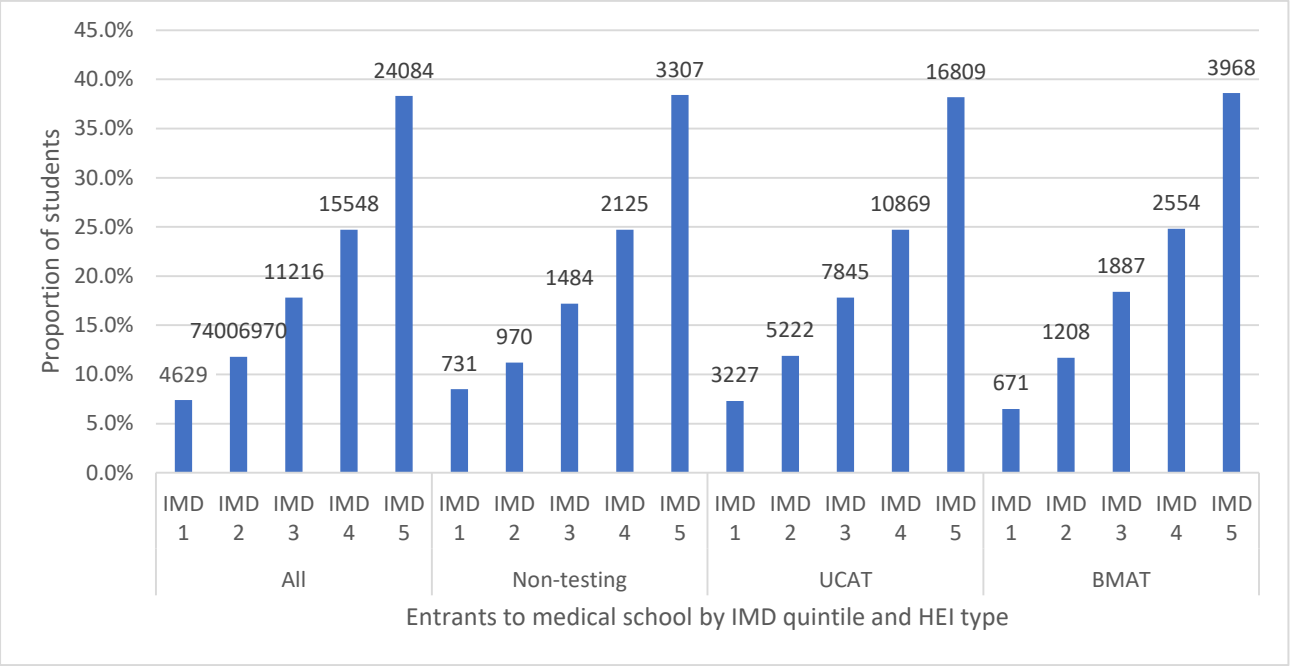


Figure 3.03: Breakdown of students entering medical school according to the entrance test used by the medical school and according to the IMD quintile they belong to.

Bar chart showing the percentage and number of medical school entrants, between 2007-2016, within each type of medical school, according to the entrance exam used and their IMD quintile. N numbers provided in chart.

Figure 3.04

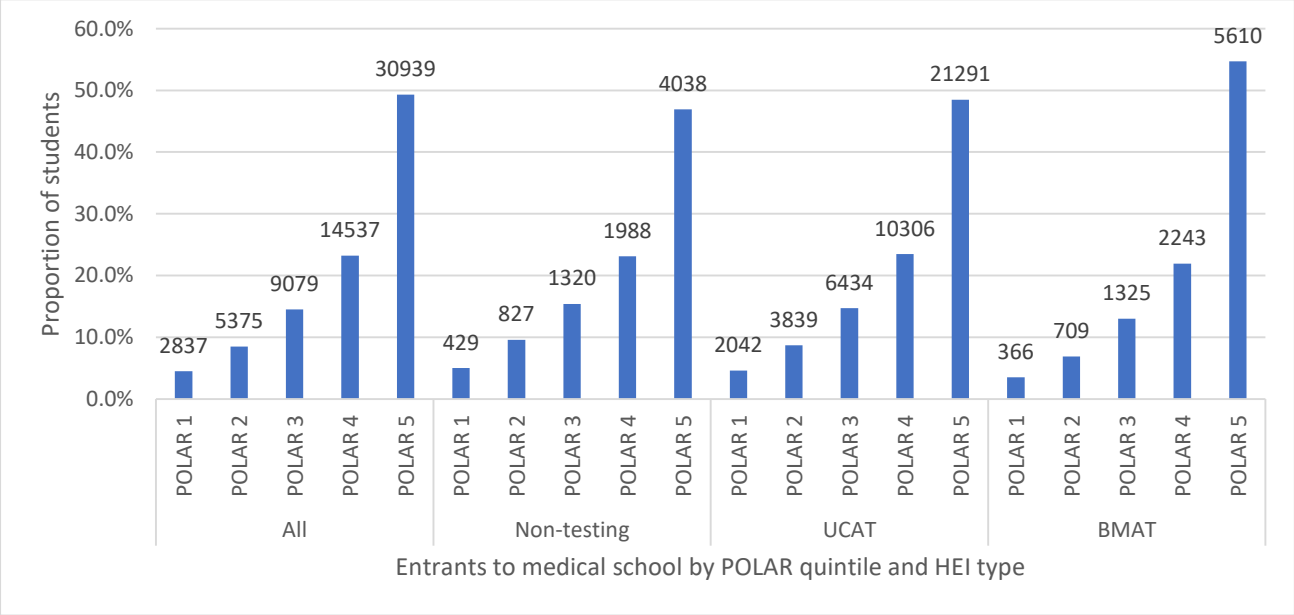


Figure 3.04: Breakdown of students entering medical school according to the entrance test used by the medical school and according to the POLAR quintile they belong to.

Bar chart showing the percentage and number of medical school entrants, between 2007-2016, within each type of medical school, according to the entrance exam used and their POLAR quintile. N numbers provided in chart.

Figure 3.05

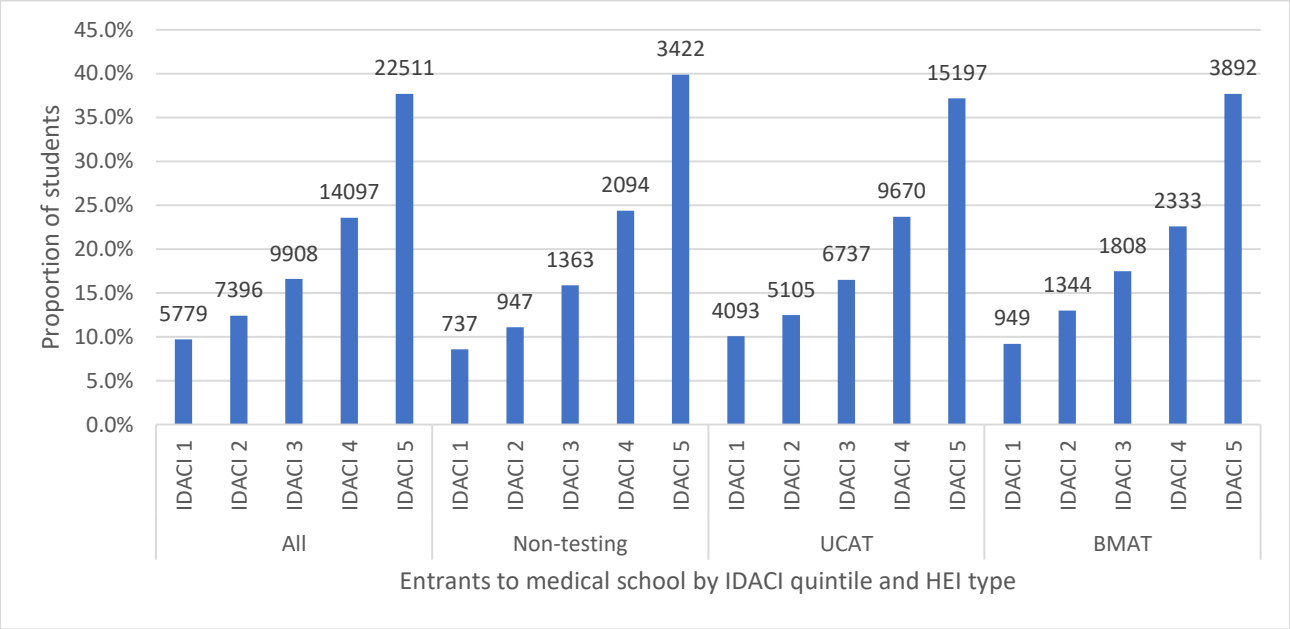


Figure 3.05: Breakdown of students entering medical school according to the entrance test used by the medical school and according to the IDACI quintile they belong to.

Bar chart showing the percentage and number of medical school entrants, between 2007-2016, within each type of medical school, according to the entrance exam used and their IDACI quintile. N numbers provided in chart.

Figure 3.06

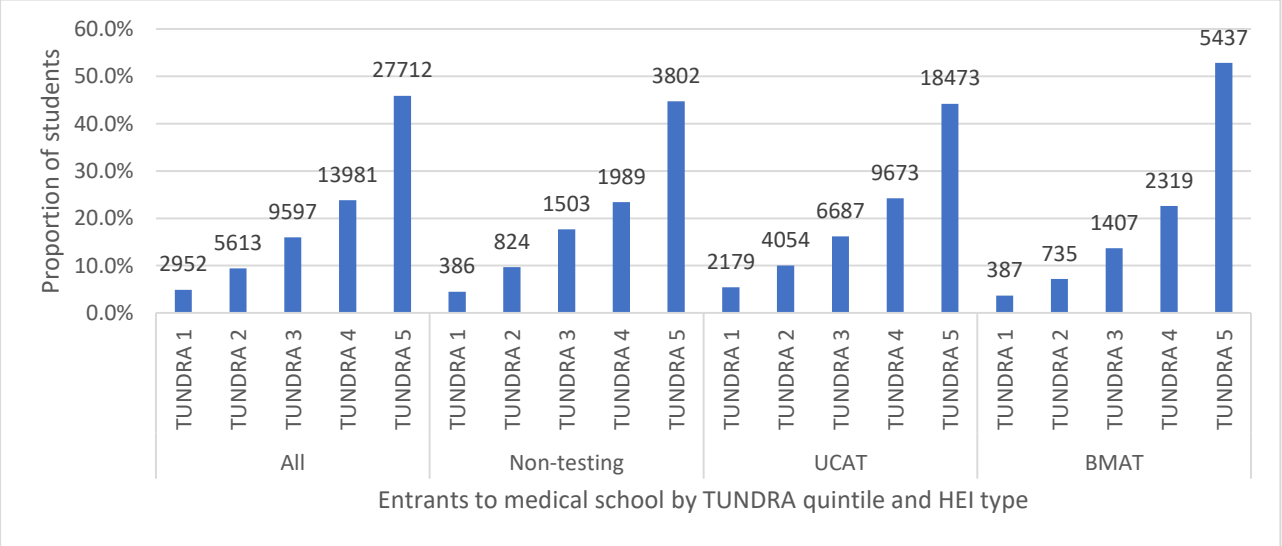


Figure 3.06: Breakdown of students entering medical school according to the entrance test used by the medical school and according to the TUNDRA quintile they belong to.

Bar chart showing the percentage and number of medical school entrants, between 2007-2016, within each type of medical school, according to the entrance exam used and their TUNDRA quintile. N numbers provided in chart.

Figure 3.07

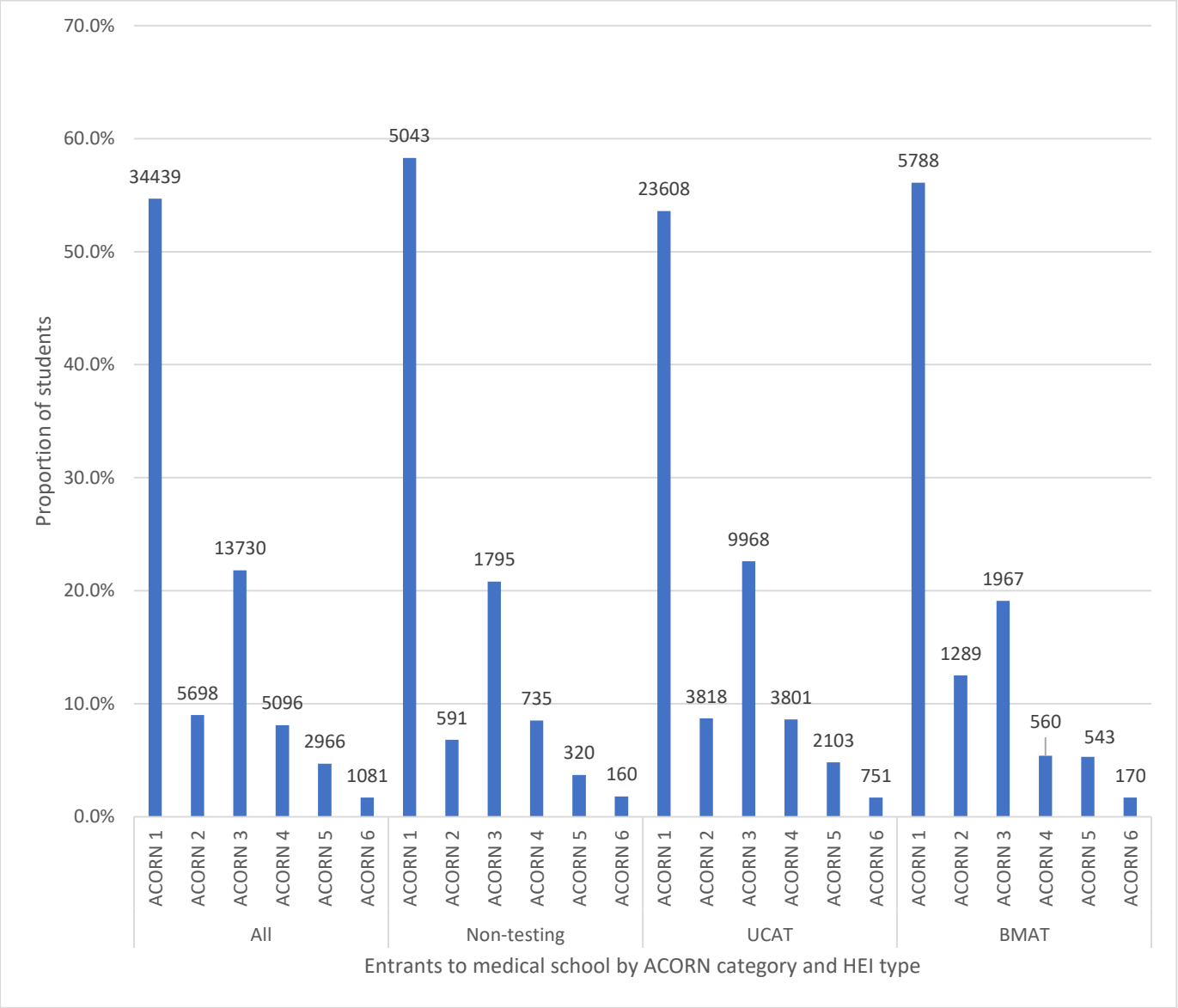


Figure 3.07: Breakdown of students entering medical school according to the entrance test used by the medical school and according to the ACORN category they belong to.

Bar chart showing the percentage and number of medical school entrants, between 2007-2016, within each type of medical school, according to the entrance exam used and their ACORN category. N numbers provided in chart.

Figures 3.03-3.07 all show very similar trends. Regardless of which WP metric used or which type of medical school is investigated, the chances of being a student at a UK medical school increase as the student's level of advantage, according to the WP quintile/category they are categorised as belonging to, increases. In all cases the top two (in some cases just the top one) most advantaged quintiles/categories make up over half of all entrants to UK medical schools, regardless of type of medical school and all students classed as non-WP make up over three quarters of all entrants.

Table 3.5 shows the significance values, odds ratios and 95% confidence intervals of a student entering a non-testing medical school, per WP metric, based on their quintile/category relative to applicants from the most privileged quintile/category (i.e. most privileged being quintile 5 for all metrics except ACORN which is category 1). These values were achieved using multinomial regression in SPSS version 25 on the HIC portal. As Table 3.5 shows, all of the p-values are highly significant.

Table 3.5 – Significance values, odds ratios and 95% confidence intervals of the likelihood of a student entering a non-testing medical school per quintile/category, for each WP metric

Non-testing medical schools				
IMD Quintile Dependent variable: IMD quintile 5	**P-Value**	**Odds Ratio**	**95% confidence interval Lower Bound**	**95% confidence interval Upper Bound**
IMD 1	<0.0005	0.22	0.20	0.24
IMD 2	<0.0005	0.29	0.27	0.32
IMD 3	<0.0005	0.45	0.42	0.48
IMD 4	<0.0005	0.64	0.61	0.68
POLAR Quintile Dependent variable: POLAR quintile 5	**P-Value**	**Odds Ratio**	**95% confidence interval Lower Bound**	**95% confidence interval Upper Bound**
POLAR 1	<0.0005	0.11	0.10	0.12
POLAR 2	<0.0005	0.20	0.19	0.22
POLAR 3	<0.0005	0.33	0.31	0.35
POLAR 4	<0.0005	0.49	0.47	0.52
IDACI Quintile Dependent variable: IDACI quintile 5	**P-Value**	**Odds Ratio**	**95% confidence interval Lower Bound**	**95% confidence interval Upper Bound**
IDACI 1	<0.0005	0.22	0.20	0.24
IDACI 2	<0.0005	0.28	0.26	0.30
IDACI 3	<0.0005	0.40	0.37	0.43
IDACI 4	<0.0005	0.61	0.58	0.65
TUNDRA Quintile Dependent variable: TUNDRA quintile 5	**P-Value**	**Odds Ratio**	**95% confidence interval Lower Bound**	**95% confidence interval Upper Bound**
TUNDRA 1	<0.0005	0.10	0.09	0.11
TUNDRA 2	<0.0005	0.22	0.20	0.24
TUNDRA 3	<0.0005	0.39	0.37	0.42
TUNDRA 4	<0.0005	0.52	0.49	0.55
ACORN Category Dependent variable: ACORN category 1	**P-Value**	**Odds Ratio**	**95% confidence interval Lower Bound**	**95% confidence interval Upper Bound**
ACORN 2	<0.0005	0.12	0.11	0.13
ACORN 3	<0.0005	0.36	0.34	0.38
ACORN 4	<0.0005	0.15	0.13	0.16
ACORN 5	<0.0005	0.06	0.06	0.07
ACORN 6	<0.0005	0.03	0.03	0.04

Table 3.6 shows the significance values, odds ratios and 95% confidence intervals of a student entering a UCAT-testing medical school, per WP metric, based on their quintile/category relative to applicants from the most privileged quintile/category (i.e. most

privileged being quintile 5 for all metrics except ACORN which is category 1). These values were achieved using multinomial regression in SPSS version 25 on the HIC portal. As Table 3.6 shows, all of the p-values are highly significant.

Table 3.6 – Significance values, odds ratios and 95% confidence intervals of the likelihood of a student entering a UCAT-testing medical school per quintile/category, for each WP metric

UCAT-testing medical schools				
IMD Quintile Dependent variable: IMD quintile 5	**P-Value**	**Odds Ratio**	**95% confidence interval Lower Bound**	**95% confidence interval Upper Bound**
IMD 1	<0.0005	0.19	0.18	0.20
IMD 2	<0.0005	0.31	0.30	0.32
IMD 3	<0.0005	0.47	0.45	0.48
IMD 4	<0.0005	0.65	0.63	0.66
POLAR Quintile Dependent variable: POLAR quintile 5	**P-Value**	**Odds Ratio**	**95% confidence interval Lower Bound**	**95% confidence interval Upper Bound**
POLAR 1	<0.0005	0.10	0.09	0.10
POLAR 2	<0.0005	0.18	0.17	0.19
POLAR 3	<0.0005	0.30	0.29	0.31
POLAR 4	<0.0005	0.48	0.47	0.50
IDACI Quintile Dependent variable: IDACI quintile 5	**P-Value**	**Odds Ratio**	**95% confidence interval Lower Bound**	**95% confidence interval Upper Bound**
IDACI 1	<0.0005	0.27	0.26	0.28
IDACI 2	<0.0005	0.34	0.32	0.35
IDACI 3	<0.0005	0.44	0.43	0.46
IDACI 4	<0.0005	0.64	0.62	0.66
TUNDRA Quintile Dependent variable: TUNDRA quintile 5	**P-Value**	**Odds Ratio**	**95% confidence interval Lower Bound**	**95% confidence interval Upper Bound**
TUNDRA 1	<0.0005	0.12	0.12	0.13
TUNDRA 2	<0.0005	0.23	0.22	0.24
TUNDRA 3	<0.0005	0.37	0.36	0.38
TUNDRA 4	<0.0005	0.55	0.53	0.56
ACORN Category Dependent variable: ACORN category 1	**P-Value**	**Odds Ratio**	**95% confidence interval Lower Bound**	**95% confidence interval Upper Bound**
ACORN 2	<0.0005	0.16	0.16	0.17
ACORN 3	<0.0005	0.42	0.41	0.43
ACORN 4	<0.0005	0.16	0.16	0.17
ACORN 5	<0.0005	0.09	0.09	0.09
ACORN 6	<0.0005	0.03	0.03	0.03

Table 3.7 shows the significance values, odds ratios and 95% confidence intervals of a student entering a BMAT-testing medical school, per WP metric, based on their quintile/category relative to applicants from the most privileged quintile/category (i.e., most privileged being quintile 5 for all metrics except ACORN which is category 1). These values

were achieved using multinomial regression in SPSS version 25 on the HIC portal. As Table 3.7 shows, all of the p-values are highly significant.

Table 3.7 – Significance values, odds ratios and 95% confidence intervals of the likelihood of a student entering a BMAT-testing medical school per quintile/category, for each WP metric

BMAT-testing medical schools				
IMD Quintile Dependent variable: IMD quintile 5	**P-Value**	**Odds Ratio**	**95% confidence interval Lower Bound**	**95% confidence interval Upper Bound**
IMD 1	<0.0005	0.17	0.15	0.18
IMD 2	<0.0005	0.30	0.28	0.32
IMD 3	<0.0005	0.48	0.45	0.50
IMD 4	<0.0005	0.64	0.61	0.68
POLAR Quintile Dependent variable: POLAR quintile 5	**P-Value**	**Odds Ratio**	**95% confidence interval Lower Bound**	**95% confidence interval Upper Bound**
POLAR 1	<0.0005	0.06	0.06	0.07
POLAR 2	<0.0005	0.13	0.12	0.14
POLAR 3	<0.0005	0.24	0.22	0.25
POLAR 4	<0.0005	0.40	0.38	0.42
IDACI Quintile Dependent variable: IDACI quintile 5	**P-Value**	**Odds Ratio**	**95% confidence interval Lower Bound**	**95% confidence interval Upper Bound**
IDACI 1	<0.0005	0.24	0.23	0.26
IDACI 2	<0.0005	0.35	0.32	0.37
IDACI 3	<0.0005	0.46	0.44	0.49
IDACI 4	<0.0005	0.60	0.57	0.63
TUNDRA Quintile Dependent variable: TUNDRA quintile 5	**P-Value**	**Odds Ratio**	**95% confidence interval Lower Bound**	**95% confidence interval Upper Bound**
TUNDRA 1	<0.0005	0.07	0.06	0.08
TUNDRA 2	<0.0005	0.14	0.12	0.15
TUNDRA 3	<0.0005	0.26	0.24	0.28
TUNDRA 4	<0.0005	0.43	0.41	0.45
ACORN Category Dependent variable: ACORN category 1	**P-Value**	**Odds Ratio**	**95% confidence interval Lower Bound**	**95% confidence interval Upper Bound**
ACORN 2	<0.0005	0.22	0.21	0.24
ACORN 3	<0.0005	0.34	0.32	0.36
ACORN 4	<0.0005	0.10	0.09	0.11
ACORN 5	<0.0005	0.09	0.09	0.10
ACORN 6	<0.0005	0.03	0.03	0.03

Tables 3.5-3.7 show that students in UK medical schools are less than a quarter as likely to be from the most disadvantaged quintile/category as they are from the most advantaged quintile/category, regardless of which WP metric or type of medical school you look at. For all but the IDACI and ACORN metrics, BMAT-testing medical schools show the lowest likelihood of entrants being from the most disadvantaged quintile/category compared to the most advantaged quintile/category. Unlike with Element One, here the two OfS-endorsed

metrics focusing on under-representation, POLAR and TUNDRA, showed the worst outcomes for the quintile 1 (most disadvantaged) students with just 6% and 7% likelihood respectively of being an entrant at a BMAT-testing medical school compared to quintile 5 (most advantaged) students. There is also noticeable difference between the two WP metrics that focus on deprivation, with IMD showing a 17% likelihood of quintile 1 students being an entrant at a BMAT-testing medical school compared to quintile 5 students and IDACI showing a 24% likelihood – putting it above non-testing medicals schools in terms of odds ratios for medical schools. Interestingly, with ACORN, all three types of medical schools showed a 3% likelihood of entrants being from the most disadvantaged category (category 6) compared to the most advantaged category (category 1).

There is a marked difference in the odds ratios between WP categories. Categories 4 and 5 for ACORN and quintile 2 for all the other WP metrics have a greater likelihood than category 6 and quintile 1 students of being an entrant across all types of medical schools. This further supports the suggestion that WP quintiles/categories should be looked at individually wherever possible to ensure an averaging effect doesn't negatively affect the most disadvantaged students.

However, there is also an interesting trend when looking at the non-WP end of the scale for each of the metrics. The next most advantaged groups (category 2 for ACORN and quintile 4 for all other categories) still had less than a 70% likelihood, compared to category 1 and quintile 5, of being an entrant across all types of medical schools, with ACORN metrics showing this to be a less than 50% likelihood across all types of medical schools. This suggests that students from the most advantaged quintile/category for all WP metrics and types of medical school dominate places at medical school. This is important to be aware of and for medical schools to consider. Widening access work focuses very much on students that are categorised as WP using WP metrics but it appears that the diversity issue within medical education is even more pronounced than simply being a case of the most disadvantaged students not being as represented as the most advantaged students. The data in this section appears to show that, actually, all students are under-represented compared to the most advantaged group and there is perhaps more work to be done on a wider scale. Whilst this shouldn't detract from dedicated and specific support for students who are classed as WP in these metrics, it is something that medical schools should be aware of and consider within their own contexts, particularly with the potential knock-on effect the lack of diversity can have. An important part of widening access and participation, and a marker of success in this area, is around student belonging and on-course success, which we will discuss further in the next chapter. Part of belonging is about fitting in and

having shared experiences/commonalities. Medical schools should consider the potential impact, particularly in terms of a social divide, if the bigger issue of diversity (i.e. not just in terms of WP versus non-WP) does not change but WP and outreach initiatives become more successful in increasing the proportion of WP students that enter UK medical schools. Further break downs of this data can be found in Tables C26-C40 in Appendix C which look at the effect of gender and ethnicity on entry rate at each type of medical school and whether there were intersectional effects between WP metrics and gender or ethnicity.

Again, gender and ethnicity effects are outside of the scope of this thesis but it is useful to see that many of the similar trends that we saw for applicants also manifested in entrant data. A future study may wish to investigate the compounding effect of WP status on outcomes by ethnicity.

3.5 Summary

This chapter investigated Phase 2 of the medical education lifecycle, using quantitative data to understand the impact of socio-economic background and type of medical school, according to the entrance test it uses, on offer and entry rates to UK medical schools.

We have seen that, despite a number of years of targeted interventions from medical schools and/or WP and outreach teams to widen access to medical school, there is still a lot of work required to make medical schools truly diverse and representative of the communities that the medical profession serves from a socio-economic perspective. Overall, we can see that, regardless of which WP metric is used, the most disadvantaged students are markedly less likely to receive one or more offers for medical school places compared to their most advantaged peers for applicants across a ten-year period from 2007-2016. This should be of concern to medical schools in relation to their widening access and participation directives. Regarding offer rate, it is interesting to note that the two metrics that focus on under-representation (POLAR and TUNDRA) correlate to each other, as do the two metrics that focus on deprivation (IMD and IDACI), but that the commercial, demographic metric (ACORN) does not correlate with any of the other metrics. This is important information for medical schools and the OfS to be aware of in terms of widening access and there is further discussion in relation to this in Chapter 5.

Many of the trends identified at the offer stage also hold true at the entry stage. WP students, across all WP metrics and medical school types, made up less than a quarter of entrants to medical school. The difference in success rates for applicants from lower quintiles suggest that there is still much work to be done in terms of widening access to

medical education in the UK and that there is still progress to be made in terms of the impact of outreach programmes or interventions designed to support the widening of access to medical education. It also suggests more work is required to influence the selection/offer process in order to influence the access and participation stage of the student lifecycle. Interestingly, WP metrics showed variance between the offer stage and the entry stage, with metrics measuring deprivation proving more effective at capturing WP at the offer stage and those measuring under-representation proving more effective at the entry stage.
This chapter also showed that BMAT-testing medical schools have the greatest amount of work to do, particularly in terms of attracting the most disadvantaged students, to encourage applications from historically under-represented students and supporting them to entry stage. Although BMAT is no longer available as an admissions test, this does not mean that the systems and structures that have caused these institutions to have the greatest disparity in terms of widening access and participation to medical education, do not still exist.

3.6 Future studies

There are two key areas from this chapter that would be useful for future studies to investigate. In section 3.3, it was highlighted that even at medical schools which that did not use entrance tests as part of their selection process during the time period examined, students classed as WP had lower offer rates than non-WP applicants. It would be useful for a future study to investigate what other factors had the greatest impact on the outcome of these applications.

Gender and ethnicity interactions with WP and outcomes were not extensively explored in this chapter as they are outside of the scope of this thesis. However, it would be important for a future study to further investigate intersectionality and identify whether WP status exacerbates other factors of disadvantage and to what extent.

3.7 Interim recommendations

This chapter has provided some interesting considerations for medical schools with regards to enhancing the way they consider WP criteria and support students that would fall into WP categories.

In section 3.3 which looks at the offer rate of students from WP backgrounds compared to non-WP backgrounds, the findings showed that WP students were more likely to receive no offers for a place at medical school than students from a non-WP background. It is therefore recommended that work done at post-16 through WP and medical outreach initiatives should make a more concerted effort to support students to consider alternative vocations/degrees

if they are unlikely to meet the entry requirements for medical school. This would also support the efforts of teachers and careers advisors who discussed in chapter 2 how they often had to work hard to discourage students away from applying to medicine where they knew they were very unlikely to make a successful application.

Section 3.4, which looked at the entrance rates to medical schools highlighted that there were differences in the success rates between WP students from different categories/quintiles within the same WP metric. It is recommended that all those who look to measure WP entry rates (OfS, medical schools etc.) should look at WP quintiles/categories individually wherever possible rather than group quintiles/categories into WP and non-WP to understand whether there are particular quintiles/categories that should be more prioritised. This would also allow an assessment of whether there are particular groups that dominate in respect to advantage as well as disadvantage.

Section 5.3 of Chapter 5 considers these findings in greater depth to discuss possible approaches to enhance support across the admissions cycle. The next chapter will focus on Phase 3 of the medical education lifecycle, using quantitative and qualitative data to understand the impact of socio-economic background and type of medical school, according to the entrance test it uses, on dropout and completion rates at UK medical schools.

Chapter 4:

Investigating the on-course experience and completion rates of medical students

Introduction

This chapter focuses on the on-course aspect of the student journey, investigating the academic experiences of medical students, using qualitative and quantitative data to understand the impact of socio-economic background and type of medical school, according to the entrance test it uses, on dropout and assumed completion rates at UK medical schools. It investigates whether there are differences in how students experience medical school and the challenges they face, based on their demographic data and educational background and/or whether the type of entrance test their medical school uses can be used as an indicator of success rates for students from historically under-represented backgrounds. Both qualitative and quantitative data are used in this chapter. This is partly to understand whether the challenges perceived by medical students are reflected in their outcomes. However, from a critical realist perspective, it was also important to be able to use experiential as well as numerical data to understand whether a student's demographic and educational background still affected their medical education journey once they had successfully attained a place at medical school and, superficially appeared to be were on a par with their peers irrespective of prior advantages/disadvantages. Using mixed methods data for this chapter allows us to gain some perspective and insight into whether medical schools are providing an equitable experience or simply an equal one in their efforts to widen access and participation. The data and methodology used in this chapter are detailed elsewhere in this thesis in Chapter 2, section 2.2, sub-section 2.2.3 and Chapter 3, sections 3.1 and 3.2.

4.1 Retention, completion, and drop-out rates in medicine

Generally speaking, dropout rates are notoriously low for medical education in the UK, and, according to HESA, the lowest of any subject area at the time of writing (HESA, 2021a). However that is not to say students don't drop out. A report by the Social Market Foundation in 2017, commissioned by the University Partnerships Programme (UPP) Foundation, shows that students from disadvantaged and minority ethnic backgrounds are the most likely to drop out of university and that almost 1 in 10 students in London drop out within their first year of study. (Petrie and Keohane, 2017). This is in stark contrast to how London performs with getting people into Higher Education: *"London over-performs in getting its young people into university, but the capital's universities struggle to keep students. London's young people drop-out score is high, second only to the North West."* (2017: p. 6). The report also notes that many of the disadvantaged groups that are targeted through widening access programmes are also those most at risk of dropping out. It could be inferred, by a critical realist, that the political agenda encouraged HEIs to focus their resources on getting WP

students through their doors at the expense of ensuring that they thrive whilst they are there. However, consideration should also be given as to whether there is some confusion on the part of medical schools as to what is equitable treatment versus what is equal treatment; it is this question that has partly driven my investigation into the on-course stage of the student lifecycle.

Whilst the report is not specifically written about medical education, it is important to know whether these trends are similar within this field, since it is well known that medical education already struggles with widening access to ensure a diverse student body. (Milburn, 2012) If students that fit into widening access categories are also the students that are most likely to drop out once they are on a medical course, particularly in London, then the challenge isn't just in widening access to medical education but supporting participation in medical education for students from historically under-represented backgrounds.

Considering this through a critical realist lens, although HEIs would like to assume that they provide an equitable experience across their student body, it is much more likely that what they provide is an equal experience – meaning that the inequalities that students enter university with are likely to persist. Equity and equality are often conflated (Capper, 2022), largely because it is not always easy to define equity in context. Although there are more academic definitions, Loefler neatly, and relevantly, describes equality as denoting 'evenness and lack of difference' whereas equity is determined to be about 'fairness' (2006). However, not everything that is equal is necessarily fair and not everything that is fair is necessarily equal. Within any given context, it is usually clear what constitutes as being equal, but it is rarely clear what constitutes as being fair. Loefler questions whether fairness is closer to addressing reality and equality is more of a mirage. This is a battle that medical schools are faced with in their efforts to widen access and participation. Superficially, equal treatment of students levels the playing field (and stops advantaged students and their parents complaining about unfair treatment). However, in reality, equality is merely concealing unfairness. Equity is what is needed to support student from historically under-represented backgrounds into and through medical education, but it isn't always easily identified or actionable. This section of this thesis aims to provide a little more clarity to this in the context of on-course support requirements of medical students, exploring the experiences of students from across all educational backgrounds to understand where equality has been a useful approach and where it has been a barrier to equity.

Students from historically under-represented backgrounds are less likely to have commenced their course with the assumed prior knowledge that the university/course will

have expected of them or with the networks to develop their skills and knowledge without additional support. (Bassett et al, 2018) Bourdieu's capital theory specifies three forms of capital: economic, social and cultural capital and how dominant or subordinate each form of capital is in any individual context will shape a person's habitus (Bourdieu, 1986). All three of these forms of capital are likely to interplay and impact the way a student experiences their journey into and through medical school. Bassett et al (2018) found that first in family students struggled to fit in at medical school and that there was a sense of a middle-class identity being the norm, which led to feelings of being stigmatised and ashamed. Wilkinson (2016) discussed the concept of the hidden curriculum of students, where more privileged students used their cultural capital to their advantage causing a sense of alienation for students from historically under-represented backgrounds. This has been evidenced in my personal and professional experience and, in this chapter, I wanted to investigate whether similar was true of the experiences of medical school students at Imperial College London.

To provide some brief context to the setting into which the students transitioned for their medical education, Imperial College London was established in 1907 as part of the University of London. It is a multi-site, STEM specialist institution, with its main campus located in South Kensington in the affluent West London borough of Royal Kensington and Chelsea. It merged with St. Mary's Hospital Medical School in 1988 and, following a series of other mergers, established a School of Medicine in 1997. The College became independent from the University of London in 2007 (further information available at https://www.imperial.ac.uk/about/history/college-developments/ and http://www.imperial.ac.uk/medicine/about-us/history/). It is a member of the Russell Group of universities (https://russellgroup.ac.uk/), is considered to be a high-tariff institution and is consistently in the top 10 of all national university league table rankings and in a number of global rankings. At the time of writing, it has recently placed second in the QS World University rankings for 2025 (www.topuniversities.com/world-university-rankings).

The Imperial College London School of Medicine used the BMAT entrance test until 2023 and, until 2020, it also used panel interviews as part of its selection criteria for undergraduate medicine. Although it now uses MMI interviews and will begin to use the UCAT entrance test from 2024, the participants that were interviewed for this research were all selected via panel interviews and BMAT. The undergraduate medical programme at the College is a six-year programme with a compulsory intercalated year taken in Year 4. A breakdown of the structure of the medical programme can be found on the College website (https://www.imperial.ac.uk/study/ug/courses/school-of-medicine/medicine/).

The School of Medicine work closely with the Outreach team at the College to support outreach and widening access activities focused on medicine. In 2014, the outreach team and School of Medicine formed a collaboration to pilot a *Pathways to Medicine* programme sponsored by the Sutton Trust (further information available on the Sutton Trust website at https://www.suttontrust.com/our-programmes/pathways-to-medicine/). This programme works with students from the end of their Year 11 studies through to end of Year 13 to provide IAG, support and opportunities to students from WP backgrounds in accessing medical education. The programme is now in its eleventh year at the College and has also been extended to three other universities across England.

This chapter aims to look at whether there are any specific, perceived on-course challenges that may make it more likely that particular groups of students will drop out over other groups and whether the trends highlighted in the UPP Foundation report regarding disadvantaged students hold true when looking specifically at medical education.

4.1.1 Methods

The data and methodology used in this chapter are detailed elsewhere in this thesis in Chapter 2, section 2.2, sub-section 2.2.3 and Chapter 3, sections 3.1 and 3.2.

4.2 Results and key findings from one-to-one interviews

About Imperial College London

As outlined in Chapter 2, eleven interviews were undertaken with current medical school students, across all years of study, and from a range of educational backgrounds, at Imperial College London. This section will focus on the on-course experiences of students that were discussed in the interviews. The purpose of this was to understand whether, once students made it through the selection process for medical school, there were any further challenges that hindered their progress through their medical studies or affected some groups of students more than others.

One-to-one interview findings

Alongside the questions about their pre-entry experiences of applying to medical school, the participants in the one-to-one interviews were also asked about their on-course experiences.

There were seven themes that emerged from the responses in this section of the interviews as follows:

- Pre-entry communication and information
- Transition to the College and the medical school
- Formal support structures
- Informal support structures
- Transitions between academic years of study and on-course challenges beyond first year
- Study skills
- The general student experience

These are covered in detail below.

4.2.1 Pre-entry communication and information

The interview participants had mixed experiences about pre-entry communication and information from the College, which partly reflected the different years in which they commenced their studies. However most of the conversations on pre-entry communications focused on general College information. For example, students discussed various Facebook groups they had been invited to join in the run up to the start of the year and those moving into halls talked positively of the accommodation information they received. However, no-one recalled receiving any medicine-specific information and, particularly for those who had attended state comprehensive schools or taken gap years, they found this unhelpful and felt that it made preparation for starting the course difficult.

"It would have been nice if they just…[said] like here's the 'note bank' by the way, have a look at it if you want to. You can take advice looking at these notes to prepare yourself to break yourself in. Because all are readily available you just, so it's just at the moment [pre-entry] you're not in the community so you don't know where to start searching…."
Quote from one-to-one interview participant 5, state comprehensive school attendee, regarding pre-entry support.

From a critical realist perspective, it appears that medical schools have an assumption/expectation of what level of knowledge and knowhow their students are coming in with. However, if they do not make this explicit or provide some direction for preparation to join the medical school community, they may be inadvertently promoting a hidden curriculum where those who are aware and have been prepped by their schools/sixth forms will thrive and those who have not will struggle to survive. (Lempp and Seale, 2004; Gofton and Regher, 2006; Giroux and Penna, 2012; Alusbaie, 2015). Universities often fail to understand the challenges faced by students from historically under-represented backgrounds and, therefore, fail to accommodate them. This is exemplified by the fact that much of the discourse around

WP is about helping students to adapt rather than about HEIs adapting to accommodate students.

Students suggested that they would have liked a detailed timetable for the first term of the first year over the summer so that they could do some research and feel more prepared for what was to come. They also indicated that a pre-entry (non-compulsory) reading list would be helpful for the same reasons. Some students suggested having access to current students or a pre-entry extension of the 'Mums and Dads' scheme (discussed in section 4.2.3 below) would also have helped. On the other hand, some students, particularly those from the state selective and independent sectors had talked about not needing very much in the way of pre-entry information because they wanted to come in with "an open mind" and enjoy their summer break. This is an interesting contrast and possible reasons for it are discussed further in section 4.2.2. However, the main overarching point is that no interview participant talked about the pre-entry information and communication they received from the College, and particularly, from the medical school, in especially glowing terms. Many of them did not recall receiving any information but they had different perspectives on how that affected them.

"I feel like they could have said that here's a little bit of reading you could do if you wanted to"

Quote from one-to-one interview participant 7, state comprehensive school attendee, regarding pre-entry support.

"I was sent timetables and everything was quite clear and there was obviously lots of 'oh, it'll be explained in your first two weeks of university' so I felt quite calm and comfortable, kind of not panicked that I knew nothing about what was going to go on, so that was good."

Quote from one-to-one interview participant 3, state selective school attendee, regarding pre-entry support.

"To be honest I felt like I didn't need information, if that makes sense? I came here with a massive open mind."

Quote from one-to-one interview participant 4, state selective school attendee, regarding pre-entry support.

4.2.2 Transition to the College and the medical school

Reflections on transition to the College and medical school were a large discussion area for students. None of the interview participants suggested it was an easy or altogether smooth transition, but how/why they perceived that did vary, particularly along the lines of educational background. Looking at this with a critical realist lens, it would appear that the College has constructed their vision of an 'Imperial entrant' and framed their support for transition around that standardised student. They want to be supportive of a successful transition into medical school but often this takes an equality approach where students are offered support to adapt to the learning environment that the medical school has constructed. The College appears to be less willing to adapt their structures to factor in that

the multiple lived realities of the journey students have taken to get to the point of starting at medical school. A one size fits all approach is likely to leave everyone underwhelmed – or indeed overwhelmed depending on the perspective you are taking. Students will bring different learning, confidences and anxieties to their transition to medical school and it is important to be able to offer tailored support/opportunities as needed to ensure a positive experience for all students. Interestingly, accommodations can be made for students entering the medical school with specific, documented medical conditions and/or disabilities so there is potential to personalise support provided for students. However, even in those cases, the current system may be favouring students that feel confident and comfortable in requesting the adjustments that fit their unique set of circumstances For example, some students shared how they felt unprepared for moving into an environment where they were not individually known to their lecturers.

"It felt, obviously, you're [going] from quite a small school to a very large institution, which is also like partly a business really and obviously it did feel a lot more faceless when you're starting."

Quote from one-to-one interview participant 6, independent school attendee, regarding transition to medical school.

Although it is likely to be about efficient timetabling of induction more so than anything else, from a critical realist perspective, scheduling students straight into large lectures and receiving mass depersonalised correspondence is likely to have an overwhelming effect on students. There shouldn't be an assumption that students are prepared for this type of learning without support. This issue was evidenced in several of the responses from students.

It came up most prominently with regards to the educational aspects of transition. Many students felt overwhelmed by the immediate volume of work and lack of preparedness for new learning styles. Some felt that they were not eased in and weren't given time to learn how to study at university level and that there was no support with this – either from their former post-16 institution or by the College. This was particularly mentioned by students who had entered from the state comprehensive sector.

"The only thing I was concerned [about]….suddenly they started you off with work, I wish, like they had like….eased you in a bit more. Or maybe they went through like oh what a typical lecture is and like, I wish they kind of had someone maybe come in and maybe like an older student telling us how to work, what the different revision notes are…."

Quote from one-to-one interview participant 3, state selective school attendee, regarding transition to medical school.

"I feel like, you know, university is a lot different to school and maybe what you did for your GCSEs and A-Levels it was revision, not work for university. Whereas we didn't really have

any of that, it was like trial and error. I mean if you want to ask you can always ask like a student but at Imperial also, you just had to go off your own bat to do it."

Quote from one-to-one interview participant 5, state comprehensive school attendee, regarding transition to medical school.

"So the first week or two were like refresher stuff, but after that it was no mucking around which was really difficult and, yes, I did do… It wasn't like it was impossible stuff at the beginning, but it was… And it was more the quantity of the work and there was just so many lectures I remember and it was really… It was really like really stressful around the beginning so I didn't even know what to do first and there were more lectures the next day and it was… I definitely think some sort of bridging or just even a gradual thing to know how you work. I mean I didn't know how I would… I never sat in a big lecture before with 300 people. I didn't really know how I was taking notes and within a few weeks I realised I couldn't take handwritten notes and I had to type and it was… There were a lot of things that I needed to experiment with to see my work ethic. So I think having a few weeks to do that at the beginning would be important."

Quote from one-to-one interview participant 7, state comprehensive school attendee, regarding transition to medical school.

Another aspect in relation to the academic transition to medical school talked about the "jump" in academic content from A-Level to degree level. However, interestingly, there were quite different views on this, particularly between students from different educational backgrounds. Students who had attended independent schools or schools in the state selective sector for A-Level studies, had found the initial academic transition fairly smooth, feeling like they were being eased in to the course by going over some of the content covered at A-Level before content increased in complexity and intensity. However, students from the state comprehensive sector suggested that they struggled with the increased complexity of content immediately upon starting their degree programmes and that content was new.

"I think I was fairly comfortable with the first two years. I feel like although it's a lot of new material... It's, especially the first year, the integration from A-levels to coming to university I thought was done really well….You're still finding your feet and getting to know people, but the lectures were somewhere overlapped between A-level and what you were doing. So that was quite helpful at the time....It just sort of led you in and then before you know it you've got, you know, like a packed timetable full of stuff and you just sort of...You manage to work out your own way of learning..."

Quote from one-to-one interview participant 2, state selective school attendee, regarding transition to medical school.

"….when we started….lectures, that was a lot different to what we did at A-Level. The content and the way of teaching….and the tutorials themselves, they were different and we were not quite sure how to/what to learn from [them]….we don't know how much we need to know and to what extent."

Quote from one-to-one interview participant 10, state comprehensive school attendee, regarding transition to medical school.

"Maybe like an older, like, student coming in or like a lecturer telling us how they would expect, like, what are the key things to pass a year. Like [a] few tips or what to expect, and also, because we never had a lecture before, what, kind of, how to revise for exams, how to make notes, do we use mind maps, do we use other text books, do we use the PowerPoint, do we use Panopto….So, what do we do for that, so just someone telling us exactly like how it works."

Quote from one-to-one interview participant 3, state selective school attendee, regarding transition to medical school.

Some students said that they "expected" hard work at such a prestigious university, whilst others felt as if they were at an immediate disadvantage and/or had fallen behind because they hadn't attended "a good school" so they hadn't covered all of the same science content at A-Level as their peers. Whilst they had expected it to be hard, they had expected it to feel equally hard for everyone and not feel like they were inferior to others in the cohort who they felt had been better prepared by their schools.

"Just possibly [the College should offer] like maybe some bridging courses to fill in the gaps, because I did feel like a lot of people knew… They may have learnt things at different levels. Like we did the kidneys and I've never done it before, but you know everyone else seemed to have done it in IB or A-levels and I hadn't. I mean obviously they can't fill in every gap, but to have the first few weeks being much more of a gradual… Like the workload was literally just…"

Quote from one-to-one interview participant 7, state comprehensive school attendee, regarding transition to medical school.

There are two areas of concern here to consider. One is that students immediately start to feel overwhelmed when they start their degrees, which can lead to a feeling of falling behind and being unable to catch up. This will affect students in different ways with some students perceiving that this is because they have come in with a lower level of knowledge, particularly related to scientific knowledge, which can impact their confidence and their transition to the course. The second is that there appears to be an assumption of knowledge from the medical school that all students have come in with a comprehension of 'how' to learn at university. This appears to be additionally impacted by the first concern where students who are familiar with the scientific content covered at the early stages of the course, use the opportunity to develop their higher level learning skills and adjust to the volume of work and teaching styles. Those that are unfamiliar with the content don't feel able to do the same as they are trying to learn the content at a pace that they are not used to or prepared for and start to feel inferior or aggrieved. . It is also important to acknowledge that those that appear to have been most affected in this way studied at state comprehensive schools. It could be the case that this is why, when discussing pre-entry information in section 4.2.1, students from state comprehensive schools said they would have welcomed some optional academic work and information before they started their course, whereas

students from the independent and state selective sectors felt less concerned about academic preparation before they joined the College.

The barriers being highlighted here could be argued to be twofold. On the one hand, the College assuming the same lived experience of academic learning and preparation for Level 4 learning, of all of its new entrants is problematic and doesn't lend itself to an equitable transition experience. On the other hand, in the empirical domain of critical realism, it could be argued that the students themselves are creating personal barriers here by assuming inferior knowledge to others in the classroom and allowing this impact their confidence and on-course experience. This is particularly the case for students who came from a state comprehensive school background suggesting that, contrary to the assumption that prior disadvantage and negative experience is left at the door when starting at university, prior educational background plays an important part in the barriers that students face and/or perceive.

However, something that was mentioned by students from all educational backgrounds was feeling like they had a lack of information about the structure of the whole first year. They felt that it would have helped their transition into and through year 1 if they knew, for example, in advance what they would be studying in terms 2 and 3 so that they could prepare for the increased intensity in these two terms. They also indicated that not having exams structures explained to them was quite a difficult hurdle to overcome as they weren't sure of what or how to revise.

"I didn't have any information before. I didn't really know the course structure. Exams - I didn't know if I would have [them] in January or June. I didn't know really what we would be learning. I knew a little bit from my friends in the year above that like you're doing biochemistry at the beginning, but I didn't know my timetable. We didn't get anything until we literally stepped into Imperial. I didn't know if I would be nine till five or nine till two, like nothing."

Quote from one-to-one interview participant 7, state comprehensive school attendee, regarding transition to medical school.

Finally, the one-to-one interview participants were asked to rate their experiences of adjusting to difference in academic study between sixth form and university between 1 (very easy) and 10 (very difficult). The average score was 6.8, however over half of the participants selected 7 or 8 with, notably, a couple of students who had joined from the independent sector being the only participants to score towards the "easy" end of the scale.

In summary, experiences of academic transition highlighted a disparity between the transition experiences of students that joined from the state comprehensive sector compared

to those that joined from the independent or state selective sectors. Students, particularly from the independent sector, but also from the state selective sector, felt confident that they had been well equipped to adapt to the medical school environment in terms of study skills and science content. However state comprehensive students' experiences of transition into medical school had not been overwhelmingly positive and most students from this group felt that they could be provided with more/better quality information that equipped them to be prepared for the volume of work and style of teaching/learning.

4.2.3 Formal support structures

Students also discussed access to support from the College and how they got help when they needed it. Accessing support isn't always as easy as just wanting or accepting it. Looking at the empirical domain of critical realism, there are many barriers that students perceive in seeking support. From my experience, students are not always comfortable in sharing with their academic and clinical supervisors that they need or have sought support. In my professional role, when looking at the progression data of students in the faculty, there are also plenty of students who would benefit from support but don't seek it at all. This could be for reasons such as not understanding how it could help; concerns about confidentiality; a perceived stigma around being seen to be 'failing' or unable to cope by academic tutors (Lempp and Seale, 2004); or being unaware that there are support systems in place. Therefore, it is important to acknowledge that those students answering this question with experience of accessing support felt comfortable in sharing this information which may already position them at an advantage in terms of having the confidence and self-advocacy skills to openly seek and accept support. Those who had an awareness of formal support available to them or informal connections may also have had an edge over those who lacked such information or networks. Access to support was split into formal and informal support structures and this section covers the formal structures that were discussed.

Formal support structures are the processes managed by the College and student union to provide support to students. The most recognised and mentioned formal support structure in the one-to-one interviews was the student union's 'Mums and Dads' scheme, whereby older students from the same degree programme volunteered to support first years during their transition to the College to help them settle in. This is an optional scheme and first years do not have to get involved if they would prefer not to. Each first year student gets assigned to a 'family' with a 'sibling' also from the first year, alongside the older year group 'parents'. The 'Mums and Dads' are there to offer social and academic support for first year students as well as to act as a signpost for queries. (Further information available at https://www-d7.imperialcollegeunion.org/mums-dads-202021). This scheme was very highly regarded by

the one-to-one interview participants and some commented that it would be even more helpful if students could have access to it prior to starting to help them to prepare for the start of the academic year.

"….So we knew that we would have our medic parents but we didn't….we weren't properly matched until, like, the second week. So we didn't know, we couldn't contact them ahead of time which would have really helped."

Quote from one-to-one interview participant 10, state comprehensive school attendee, regarding support with transition.

"I feel like Imperial, they did support me, like, accommodation-wise, food and what, like, just everything why they gave us like a medic mum and dad. Imperial does that and that's a good scheme. They were like, making us like mingle, pressured a bit, so like having us mingle to meet different people. I met new people, so I felt like they did support me as much as possible"

Quote from one-to-one interview participant 3, state selective school attendee, regarding support with transition.

Nursaw (2014) and Bassett et al (2018) discuss peer mentoring (of which the Mums and Dads scheme is a version) as a common approach to WP in medical schools with a focus often on orientation and socialisation. However, Bassett et al also found that for some historically under-represented students, this was a means to informally and strategically network with older students to obtain academic advantages. This is something further discussed in the next section of this chapter.

Other sources of formal support that were cited briefly included hall seniors and personal tutors – but neither were mentioned in great detail or with any consistency. In fact, most students said that they were not sure where they would/should go if they needed any form of formal support.

"If I'd have wanted more support at that stage, I'm not sure... Yes, I wouldn't have necessarily known the options that were available, but I don't know whether it's because….I didn't look for it"

Quote from one-to-one interview participant 2, state selective school attendee, regarding seeking support.

This should be of concern as it means that students may be unnecessarily struggling – be it academically, financially, or other personal aspects – because they are unaware of the formal support structures that are available for them to access. There may well be systemic barriers that prevent some students from accessing helpful support services in the actual domain of critical realism and it is important for medical schools to review and address if this is the case. Anecdotally, in my own professional experience, I have often found that information on support services that are provided at the start of the academic year, during induction, are often forgotten by students due to 'information overload' and they then struggle to access support services – particularly academic support services - when they

later need them. This is supported by work undertaken by Baptista and Smith (personal communication), who found a similar situation occurred at Imperial College London. Those who do utilise such support may be self-selecting as a group that is already advantaged in navigating university resources and overcoming stigmas. Increasing awareness, destigmatising help-seeking and promoting an overall culture of care could help to cultivate an equitable experience for all students.

The one-to-one interview participants were also asked to rate the support provided by the School of Medicine with their academic studies between 1 (no support) and 10 (more support than needed). The average score was 5.8 with students suggesting that they did get support but that this could be improved. Interestingly some students suggested that they would score this higher if the student community was to be included as an informal source of support. This is discussed further in section 4.2.4 below.

4.2.4 Informal support structures

One very strong theme that came up in the one-to-one interviews was the role of informal support structures to "survive" medical school. This resonates with research from Lempp and Seale (2004) who talked about informal help-seeking in terms of 'implicit rules to survive the institution.' Nearly all students in the one-to-one interviews mentioned that they were part of a society in the student union and that is how they got the academic information and support they needed throughout their time at the College's medical school. The College has a separate student union for medical students – the Imperial College School of Medicine Students Union (ICSMSU) (https://www.icsmsu.com/) – which exists specifically for medical and medical biosciences students at the College. As with traditional student unions, ICSMSU has various societies centred on faith, sport etc. One-to-one interview participants talked a lot about the role of these societies in guiding and supporting them throughout their time at the medical school. These societies were not just traditional societies that give students opportunities to discuss/experience a shared common interest but were also a source of pastoral and academic support throughout their course.

The one-to-one interview participants talked about societies that ran events to, for example, go through past exams questions or run practice Objective Structured Clinical Exams (OSCEs) which are a key assessment component of medical degrees, allowing students' clinical skills to be tested in role play scenarios with patients. Students didn't necessarily join these societies with much in the way of genuine interest in the society itself but instead to gain access to academic resources that they felt were lacking through any kind of formal structures.

"So I'm part of the rowing club and we have quite a good educational system with the club to sort of help us through our OSCEs….'make sure you come every Thursday and you'; absolutely, you know, smash the OSCEs' is what they used to say."
Quote from one-to-one interview participant 11, independent school attendee, regarding support from student union societies.

"I got involved in so many societies….I would say unofficially Imperial supported me through these societies and the older students [in the societies] are so, so helpful….whether it was offering notes, or just like advice….it just made the transition so much easier."
Quote from one-to-one interview participant 5, state comprehensive school attendee, regarding support from student union societies.

It is interesting to consider how and why students were more aware of these informal support structures, largely via student societies, than of formal structures. Did the societies have a better marketing strategy than formal support structures? Was it the sheer volume of the number of societies available and the support that they were offering that made them more accessible? Was peer support deemed more acceptable/less like 'failure' than reaching out for formal support? From a critical realist perspective, the most likely reason that this type of informal support was so popular is because certain students felt that it offered types of support that formal structures wouldn't in terms of past exam questions etc. However, this still doesn't address *how* students found out about this support and why they were more aware of it than formal support structures.

All of the students that said they were members of a society talked about how much they relied on that society to support them academically. There also seemed to be a notoriety around some of the societies in terms of their "specialisms." For example, the Muslim society was very well regarded and mentioned by all the students in terms of the exam support they provided. Some students talked about how they "gamed" the system and joined different societies for different aspects of academic support. Many students said that they would not still be studying medicine had it not been for the help they received from student societies and there seemed to be instances of over-reliance on this form of support.

"I joined Muslim Medics and with that society I found that everyone in the upper years are so willing to help you with whatever, regardless….we have like CBS days, we had immunology days, so like days but basically for a specific subject, that is taught by upper years….being part of that network made me feel like, yes, I've got someone and I've got some support system…."
Quote from one-to-one interview participant 4, state selective school attendee, regarding support through student societies.

"Oh yes, obviously the lectures are given….lots to watch on Panopto but past that there's no [other formal help]. So, students [in societies] like they do extra tutorials throughout the year, in first and second year. They do like intensive revision data, you come in at night and you leave at 9pm after having like 20 older years giving you lectures throughout the day, sort of thing…."

Quote from one-to-one interview participant 6, independent school attendee, regarding seeking support.

"You apply for doing mock exams offered by Muslim Medics, Christian Medical Fellowship, you know, all of them. And then you just rank your choices and everyone gets guaranteed at least like one, but it wasn't like that last year and I know people that set up their own things via societies. And I think that's probably a big advantage."
Quote from one-to-one interview participant 2, state selective school attendee, regarding support through student societies.

"Med Eds society, Muslim Medics, Gradmed, CMF, like all these student led things [do] mock paces, mock exams, they'll do loads of lecture series for you outside of normal hours. Like it's just purely, you can almost get through with just the student run stuff [by joining] different societies."
Quote from one-to-one interview participant 6, independent school attendee, regarding support through student societies.

"I could have struggled a lot, lot more. Actually, I probably wouldn't have got….I'd probably have got through but I would probably have to resit a few exams. I [would have] had to struggle a lot more, I wouldn't have enjoyed [it] as much. In fact, even if it was interesting, I would have, yes, would have struggled a lot more [without support from societies]."
Quote from one-to-one interview participant 5, state comprehensive school attendee, regarding support from student union societies.

It could be argued that students were seeking to replicate the positive formal support that they had found in the Mums and Dads scheme, due to that scheme inevitably being time limited. Another potential option is that they were trying to replicate the more familiar, structured environment that they were used to in school. Student-run societies played a vital role in providing specialised academic support, guidance and resources for many students. Some students deliberately took advantage of multiple societies, and for certain students, this society-based support system was perceived as being crucial to persisting in their studies, perhaps to a degree where they became overly reliant on them.

This reliance on societies for academic support with medicine is a worrying trend and one which is not unique to Imperial College London. Whilst peer support and learning in itself should not be seen as a bad thing, the way the ICSMSU societies were talked about in terms of how much they were relied upon for academic support should be a concern. For one thing, the information that they are sharing will be at least one year old (as it will be the accounts of older students sharing their exam etc. experiences) and whilst there are unlikely to be wholesale changes each year, there is a risk of information not being entirely accurate or matched to specific learning objectives if they change. Secondly, access to information is restricted to those who happen to be a member of that particular society, which creates a disparity in terms of access to information. Not everyone will be a part of a student society, or the society that will provide them with the most help for their particular area of weakness, and so there is not equitable access to the support being provided.

"Also like being a member of a sports team or another society. One of the largest societies is pretty helpful for educational tips, access to documents. The biggest variation I think between students is what they can access in terms of past papers and notes and things like that. It's different, clubs have got their different versions of... Like of mock exams and past papers and things like that….so you know, you'll get some people who go just to the football club or to like opera or to any societies. Yes, so past papers and notes and they run their own mock paces exams. So that's quite exclusive I guess. Yes, so if you're not part of a club it can be tough..."

Quote from one-to-one interview participant 2, state selective school attendee, regarding access to informal support.

Informal support structures inadvertently create systemic barriers because they aren't necessarily accessible to all, whether due to membership costs, demands on time or a student not feeling like they are able to join a certain society (e.g. religious or sports society). Additionally, different societies have different information/support that they provide and so not every student will have access to the same, or indeed even accurate, support from these sources. Looking at this from a critical realism perspective, students seem more open to this type of peer support and stigmas around seeking support seem less prominent in this informal environment, therefore it may be useful to explore how to harness and replicate this in a more formal way or maybe improve formal support structures in whatever way students need. In order to do this, we need to find out why they are the first stop for students and act accordingly.

"Some people email them [past exam papers] around to others but others don't get them."

Quote from one-to-one interview participant 1, state comprehensive school attendee, regarding access to informal support.

4.2.5 Transitions between academic years of study and on-course challenges beyond first year

The one-to-one interview participants were asked about any challenges they had faced so far on their course, regardless of which year they were currently in, which raised some interesting issues and considerations. Most students said they were completely taken aback by how much the intensity and volume of work increased in year 2 of the programme, particularly as they had only just started to develop a routine for how year 1 had worked and didn't feel that they had been prepared for the large jump in workload. Students in later years of the programme also said that they felt ill-prepared for year 3 when most teaching is delivered in the clinical environment. They felt that they didn't know where to turn for support when on wards and the College could have done more to support and/or signpost them. Some students also struggled with the difference in teaching and assessment style during their intercalated year, particularly in instances where they were expected to write essays, which they hadn't done since at least A-Level if not GCSE level.

"It bumped up again in second year and you didn't quite get as much support as in first year. I don't know if that's because they kind of expected you to adapt the strategies they taught you but I struggled quite a lot in second year with just the amount of stuff to remember and we didn't have quite as many personal tutor sessions or tutorials so you kind of felt a bit on your own with it."

Quote from one-to-one interview participant 1, state comprehensive school attendee, regarding on-course challenges.

Given the discussion above regarding formal and informal support structures, this is an interesting issue to consider. Taking a critical realist view, it could be argued that students feel able to rely on informal peer support for tangible aspects of their learning such as exam preparation but intangible aspects such as learning styles, pace of learning and feeling prepared for the clinical environment were areas that they felt more formal support structures would be most useful. The overarching issue seems to be students feeling underprepared for the major transitions and shifts in academic demands at key points across their medical education. Better formal guidance, support systems and bridging preparation could help ameliorate these challenges. From a medical school perspective, it is about ensuring that the support available for transition across all stages of a medical degree are accessible and clearly communicated in a way that students don't perceive a stigma attached to accessing them.

Interestingly, exam structure and timetabling were the most consistently raised issues amongst one-to-one interview participants. Many students spoke about struggling to learn new content in term 3 of year 1 whilst also trying to revise for imminent exams. Several students spoke about poor timetabling of year 2 exams and that they were being assessed on a year's worth of work over a number of exams in a very short space of time (all exams took place in less than a week in many cases). They found this not only stressful but obstructive to being able to accurately showcase their learning due to mental fatigue and stress. Year 3 and 5 practical exams were also mentioned, with students feeling that there was very little in the way of teaching or support for clinical exams. Year 5 exams were highlighted as being particularly stressful. Students felt that "on the spot" practical exams in year 5 benefitted some students more than others and assessments should be throughout the year rather than as one-off observations. The final comment that arose about examinations was the lack of January exams. Students felt that there would be less pressure and an earlier barometer of how they were doing if their exams were split between January and the summer rather than all taking place in the summer.

"I've never had an exam season like that. It was not very nice. Well we only had three but they were in the space of three consecutive days. Well, there was a day in-between two of

them, but it was just all of the year's work in those three days and it's just cramming. You couldn't do anything but cram the information and I hate doing that."
Quote from one-to-one interview participant 5, state comprehensive school attendee, regarding on-course challenges.

"I think we could be prepared better for them. I think as a whole for the exams in third year and fifth year there's no, or very little, in way of teaching this….I guess, I don't know, it's just the way that I like things to be structured and to know what you need to know. So I feel like that's probably....what I found difficult in the past in third and fifth year."

"I think the practical element [in year 3 and 5] is important, they just examine it in such a stressful situation I don't respond particularly well to. And I think that if you're examined by a consultant across the whole year and it was less on the spot you'd have more opportunity to show what you can do and what you know…."
Quotes from one-to-one interview participant 2, state selective school attendee, regarding challenges of practical assessments in clinical years of the course.

An assessment schedule like the one above is not very inclusive and puts a lot of undue pressure on students. Continuous observation and/or extended assessment periods would allow students opportunity to showcase their learning across multiple occasions and encourages more authentic learning rather than rote learning for a discrete period of time. However, the reasons for structuring assessments in this way are likely to be multifaceted and not without regard to the student. Looking beyond current approaches being a simple practicality or logistically the most feasible, critical realism tells us that any kind of extended assessment structure is increasingly likely to compromise equity in the process. Multiple, observed assessments would require multiple assessors across multiple sites, which is difficult to standardise and this type of structure is prone to lend itself to student perceptions of bias or unequitable practice/experience In undertaking this thesis and meeting many people from across the sector more broadly who are involved in medical education, it also appears to be a commonly held opinion that being resilient and coping under pressure are crucial aspects of assessment because they are essential skills in the everyday life of a doctor. The current methods of assessment are perhaps perceived as the most effective way to test students' resilience under pressure.

Personal tutors were brought up again at this point with students suggesting that they had never really been told what the purpose or role of their personal tutor was and so weren't sure what issues or challenges it was appropriate to speak to them about.

"Imperial haven't really told us what the purpose of the personal tutor is. I don't know how much influence they have like when we apply for jobs and things. I think they write something, but I'm not sure, so yes."
Quote from one-to-one interview participant 11, independent school attendee, regarding on-course challenges.

With regards to ameliorating challenges that came up in later years of the medical programme, one-to-one interview participants suggested that, just as there was a focus on transitioning into year 1 of the course, there should be a formal transition period between years of the course too, with information provided and opportunities for questions, which would help students to adjust better to the different aspects and challenges of each year.

4.2.6 Study skills

Across a number of questions, one-to-one interview participants raised points regarding study skills, and more specifically, the study skills that they felt they could be better supported with. Far and above the most prevalent study skills cited were those required at the start of the first year to adapt to 'the university way' of teaching and learning. Most students said that they felt they needed to learn how to learn at university because it was so different to what they had previously experienced. This is in line with my first-hand experience in my academic roles where students have initially struggled to adapt to the HE environment, terminology and way of studying, and have required additional support with that transition. They were unfamiliar with how to learn or take notes in lectures, tutorials etc. and were not sure about what they should be learning from each part of the curriculum and to what depth. They said that they received quite vague guidance on this from lecturers and that made them feel less confident that they were learning what they needed to. They also felt very unsure about assessments and how to revise for them and learn from them. The overarching study skill in relation to starting at the College that was mentioned was regarding time/study management.

"I think for me it was definitely similar to quite a lot of other people in terms of what do we actually do, how do we actually study….I think a lot of people did raise that….but definitely in terms of what, how exactly we should study, because there's so much to cover and you can't actually cover everything but if we just got a really good way of just telling us some people do this and some people do that and get an expert and loads of other different people, then that would help. That, I haven't got since I started [at the College]."

Quote from one-to-one interview participant 8, state comprehensive school attendee, regarding support needed with study skills.

"I guess the biggest challenges have been the learning the way to study"

Quote from one-to-one interview participant 9, state comprehensive school attendee, regarding difficulty of learning study skills.

Students felt that a better easing into the workload of the course would have been very helpful in learning how to study and how to manage their study. In my current role I lead a team that focuses on supporting students with their academic skills to ensure they understand what is required of them at each level of study and cope with the workload; particularly important as the students are all on placement-heavy programmes of study. One

significant observation is that students who struggle to adapt to the HE environment in those early weeks of study, tend to continue to do so throughout their time at the university, unless they seek additional support from our team. However, this resource is not available universally across institutions and a more sustainable approach would be to timetable academic skills sessions in the first semester timetable rather than assume a knowledge that isn't always there. As already mentioned, medical schools should not make an assumption of knowledge about the study skills that students commence their undergraduate studies with as these are likely to differ depending on an individual students' educational background and context. Even if the study skills themselves have been taught, we cannot underestimate the impact of confidence and sense of belonging on the way a student implements their learning. From my experience, students from historically under-represented backgrounds are most likely to be affected negatively by assumptions of knowledge on their prior learning and it is important that medical schools do not exacerbate the perceived challenges these students have when entering medical school by ensuring they explicitly provide opportunities to develop and enhance study skills as part of timetabled learning.

Other study skills that students struggled with included learning to write scientific essays, which were often required during their intercalated year, and learning to adapt to clinical teaching and assessment. This is in line with the suggestion in section 4.2.5 that transition periods between years would be helpful to prepare for the different challenges that each year of the course brings.

These were issues that were experienced by students from all educational backgrounds (although to different extents) and that they would be grateful of additional support with. What became very clear from the one-to-one interviews however is that students from the independent school sector came in with more confidence that they had been taught the relevant knowledge and skills they needed to start their medical education, even if these didn't always manifest immediately.

4.2.7 The general student experience

The final theme that came up in the on-course section of the one-to-one participant interviews was generally around the student experience and students' sense of belonging. A number of students, particularly from the state comprehensive sector, had talked about looking forward to starting their course with 'a fresh start' where everyone was starting from the same point and there weren't any differences between students. However, they said that this was soon proven not to be the case as they immediately felt that they were starting from a point further behind their peers from the state selective and independent sectors who

seemed to already be familiar with a lot of the early course content. They quickly felt like they were having to catch up to their peers and that it soon became obvious that they were in a small minority of students from their background. Many of the one-to-one interview participants, including those from the independent school sector themselves, talked about how the student population seemed to be dominated by those from affluent and/or privileged backgrounds who had been 'spoon-fed' a lot of information to prepare them better for starting medical school.

"So I just felt like I didn't know anything….I always had this feeling that everyone knows everything and I don't, just because of like they went to a good school. So I did find the first few weeks was crazy, really hard, and I worked really hard…."

Quote from one-to-one interview participant 7, state comprehensive school attendee, regarding on-course challenges.

Students who feel like they are falling behind as soon as they have started or that feel that they are in a minority that have not been sufficiently supported, might be expected to be the most likely to drop out of their course. From my professional experience, there are generally a number of things that impact a students' sense of belonging, and thus the likelihood that they will persevere with their course. The sense of being 'up to scratch' academically is one aspect of this however, I have found that WP students tend to be more likely to struggle with the social and financial aspects of university. Framing this within critical realism, WP students are most likely to notice their lack of advantage when it comes to things such as needing to work to continue their studies whilst other students are using their time to enjoy extra-curricular activities instead. If students feel that they are 'different' from the norm and don't have as much time to spend on building their peer networks, this is likely to impact their sense of belonging and make it more likely that they will drop out of their course if they face academic challenges. It would be interesting to investigate whether this is reflected in feedback from those students who don't successfully complete their course.

The next section will look at whether there are trends in drop out and non-completion rates based on WP metrics to identify which groups of students may be most at risk of dropping out.

4.3 Results and key findings from Element Three of UKMed study

Element Three of the UKMED study uses HESA data for entrants to UK medical schools, between 2007-2016, to investigate the dropout and non-completion rate of medical school students on standard entry undergraduate medicine courses in the UK based on whether they class as WP according to the metrics outlined in Chapter 3, section 3.2, and the type of medical school that they attend. Again by 'type of medical school' we mean whether it was a

medical school that uses either the BMAT entrance test, the UCAT entrance test or was a non-testing institution.

Dropout rate in this context refers to students who were no longer studying at medical school by the end of their second year of study (by which time a significantly large proportion of the total dropouts have occurred). Non-completion rate in this context refers to students who have not received a Primary Medical Qualification (PMQ) number from the General Medical Council. It is a mandatory requirement to register for and have a PMQ number in order to practice medicine in the UK. Those without PMQ numbers are either still completing their studies, have failed to complete their studies, or have failed to complete registration with the GMC, presumably as they no longer wish to pursue the profession. Due to length of medical undergraduate programmes, records without PMQ numbers where the student has commenced their studies in 2014-2016, were excluded from non-completion analysis as a significantly large proportion of students would still be at medical school completing their studies.

There were a total of 81,405 student records available from UKMED for students that had started their medical education in the UK from 2007 onwards. Of these 66,160 had started on a standard entry medical degree programme (i.e., not a graduate entry programme or foundation year programme) between 2007-2016. Decisions on which versions of WP metrics to use were made as per Element Two of this study, discussed in Chapter 3, section 3.3.

The study examined 10 years' worth of HESA data from 2007-2016, but, as already mentioned, only used data up to and including 2013 for the non-completion aspect of the study. We have allowed students at least seven years for completion of their studies before we assess their PMQ registration status. However, it cannot be assumed that all students without PMQ registration numbers in that period have failed to complete their studies or GMC registration; some may have undergone significant interruption of studies or have completed intercalated post-graduate degrees requiring significant time. However, these are likely to make up a small proportion of the total so can be assumed not to have a large effect on the analysis.

Table 4.1 shows the number and proportion of dropouts by type of institution. The table indicates that there is a slightly higher proportion of dropouts overall at non-testing medical schools, though as expected, dropout rates are generally very low across all medical schools.

Table 4.1 – The number and proportion of students that dropped out of UK medical schools within 2 years of commencing their studies, by type of medical school

Type of institution	Number of entrants per type of institution	Number of students dropped out by end of their second year of study	Proportion of students dropped out by end of their second year of study
Non-testing	8860	185	2.1%
UCAT-testing	46585	850	1.8%
BMAT-testing	10720	195	1.8%
All institution types	**66160**	**1230**	**1.9%**

Table D1 in Appendix D shows that, when looking at dropout rates by year of entry (2007-2016) to medical school, these remained fairly consistent, ranging from 1.5%-2.1%.

Figure 4.01 breaks this information down further by looking at dropout rates across each type of medical school, according to whether students class as WP or non-WP for each WP metric.

As figure 4.01 shows, in a large majority of cases, dropouts from medical school are proportionally more likely to be students classed as WP, regardless of which WP metric is being used. Interestingly, in the three instances where this is not the case, and non-WP students are shown to be proportionally most likely to have dropped out, these use the OfS-endorsed under-representation metrics POLAR and TUNDRA. When looking at WP status by deprivation rather than under-representation, WP students are, in some cases markedly, dropping out at a greater rate than their non-WP counterparts. The greatest disparity in dropout rates appears to be in non-testing institutions when using the ACORN metric, with more than double the proportion of WP students dropping out compared to non-WP students.

Figure 4.01

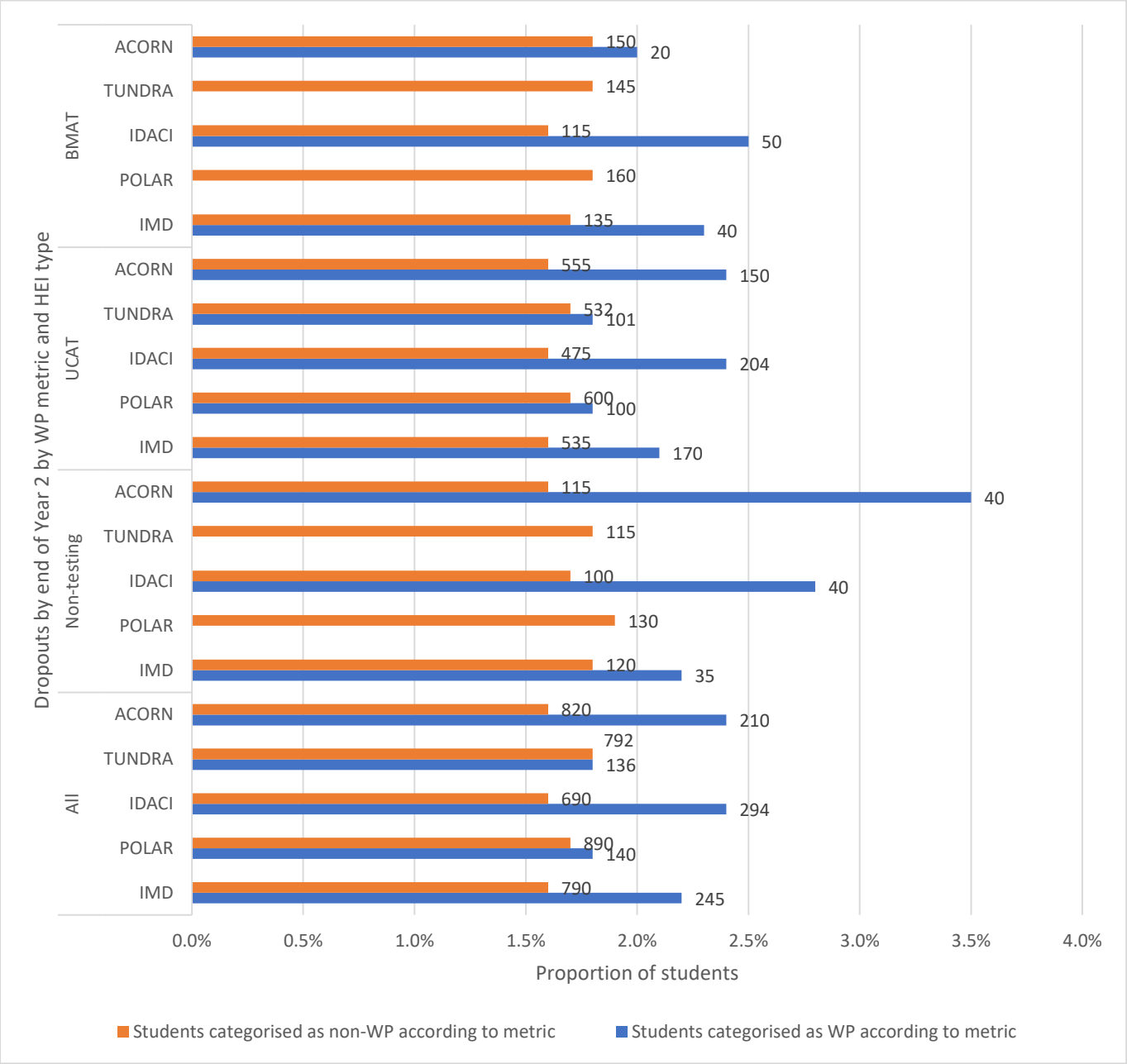


Figure 4.01: Breakdown of dropout rate by end of year 2 of study, overall and at each type of medical school (non-testing, UCAT-testing, and BMAT-testing) according to their WP status, against each WP metric

Bar chart showing the percentage and number of dropouts at each type of medical school by the end of year 2, according to the entrance test they use, between 2007-2016, and according to their WP status per WP metric. Blue bars depict students classed as WP according to the WP metric and orange bars depict students classed as non-WP according to the WP metric. ACORN categories 4-6 classify as WP students; for all other measures quintiles 1-2 classify as WP students. N numbers provided in chart. We cannot report the POLAR and TUNDRA numbers for students categorised as WP in non-testing and BMAT institutions as the numbers are too small to comply with HESA's minimum thresholds for publication.

Table 4.2 shows the significance values, odds ratios and 95% confidence intervals of the likelihood of dropping out of any type of medical school (non-testing, UCAT-testing, and

BMAT-testing) by the end of the second year of study, per WP metric, based on their quintile/category relative to students from the most privileged quintile/category (i.e. most privileged being quintile 5 for all metrics except ACORN which is category 1). These values were achieved using Poisson regression in SPSS version 25 on the HIC portal.

As table 4.2 shows, only four of the values are significant, three of which are WP metrics. Correlating with what POLAR metrics show us for non-testing and BMAT-testing medical schools in figure 4.01, a student in POLAR quintile 1 (least privileged in HE) is only 65% as likely as a student in POLAR quintile 5 (most privileged in HE) to dropout out of medical school by the end of the second year of the degree programme. This suggests that students from under-represented groups, as measured by POLAR, whilst entering medical school in lower numbers than their better represented peers (as discussed in Chapter 3), are proportionally more likely to persevere and not drop out in the early years of the course. This is despite concerns raised in section 4.1 of this chapter about students least represented in medical school feeling most overwhelmed in the early years of the programme.

The other two significant values in table 4.2 show that students in IDACI quintiles 1 and 2 – the two WP quintiles – are 26% more likely than students in IDACI quintile 5, the most privileged quintile, to dropout of medical school by the end of year 2. This suggests that an already small group upon entry to medical school, gets even smaller by the midpoint of the course. It also, as in Chapter 3, shows that measures of under-representation, such as POLAR and measures of deprivation, such as IDACI, contradict each other in terms of how they show WP students to perform against metrics. This is something that medical schools and widening access and outreach teams need to be aware of in terms of measuring performance and targeting support and resources. If only one type of WP metric is used to measure performance/outcomes, this is likely to mask wider issues across the spectrum of students.

Table 4.2 – Significance values, odds ratios and 95% confidence intervals of the likelihood of students dropping out of UK medical schools within 2 years of commencing their studies at any type of medical school per quintile/category, for each WP metric

IMD Quintile	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
IMD 1	0.807	1.03	0.83	1.28
IMD 2	0.708	1.04	0.86	1.26
IMD 3	0.400	1.08	0.91	1.27
IMD 4	0.172	0.89	0.75	1.05
POLAR Quintile	**P-Value**	**Odds Ratio**	**95% confidence interval Lower Bound**	**95% confidence interval Upper Bound**
POLAR 1	0.004	0.65	0.48	0.87
POLAR 2	0.251	0.88	0.70	1.10
POLAR 3	0.227	0.90	0.75	1.07
POLAR 4	0.375	0.93	0.80	1.08
IDACI Quintile	**P-Value**	**Odds Ratio**	**95% confidence interval Lower Bound**	**95% confidence interval Upper Bound**
IDACI 1	0.033	1.26	1.02	1.57
IDACI 2	0.030	1.26	1.02	1.55
IDACI 3	0.161	1.15	0.95	1.40
IDACI 4	0.831	0.98	0.81	1.19
TUNDRA Quintile	**P-Value**	**Odds Ratio**	**95% confidence interval Lower Bound**	**95% confidence interval Upper Bound**
TUNDRA 1	0.294	0.85	0.62	1.15
TUNDRA 2	0.097	0.81	0.63	1.04
TUNDRA 3	0.690	0.96	0.79	1.17
TUNDRA 4	0.675	0.96	0.81	1.15
ACORN Category	**P-Value**	**Odds Ratio**	**95% confidence interval Lower Bound**	**95% confidence interval Upper Bound**
ACORN 2	0.047	1.23	1.00	1.50
ACORN 3	0.623	1.04	0.89	1.22
ACORN 4	0.529	1.07	0.88	1.30
ACORN 5	0.490	1.09	0.85	1.41
ACORN 6	0.603	1.14	0.70	1.85

Dependent variable: dropout by end of year 2

Table 4.3 shows the significance values, odds ratios and 95% confidence intervals of the likelihood of dropping out of a UCAT-testing and BMAT-testing medical school relative to a non-testing medical school. These values were achieved using Poisson regression in SPSS version 25 on the HIC portal. A linear regression, using an interaction variable, was also run to determine whether there was any correlation between WP indicators and type of medical school as to the likelihood of a student dropping out. However, likely due to the small number of dropouts overall, none of the interactions were shown to be significant and so they have not been included in this final thesis.

Table 4.3 – Significance values, odds ratios and 95% confidence intervals of the likelihood of students dropping out of UK medical schools within 2 years of commencing their studies at UCAT-testing and BMAT-testing medical schools compared to non-testing medical schools

Type of Institution	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
UCAT-testing	<0.0005	0.72	0.61	0.84
BMAT-testing	0.033	1.25	1.02	1.52

Dependent variable: dropout by end of year 2

As the table shows, values for UCAT and BMAT-testing institutions are highly significant. Students at UCAT-testing medical schools – which are the greatest group as a whole – are 72% as likely as students from non-testing medical schools to drop out by the end of year 2 of the programme. Conversely, students in BMAT-testing medical schools are 25% more likely than students at non-testing medical schools to drop out by the end of year 2 of the programme. Whilst the nature of the entrance test that was taken cannot be determined as the reason for this disparity in dropout rates, it would be useful to look at the profiles of the medical schools that sit under each testing category to see whether there are any other similarities that may help to identify patterns amongst this group. Are there any commonalities between the medical schools that use the same entrance test that may explain their better/worse dropout rates? Or are there some medical schools within the group that contribute more to dropout rates than others? This is outside of the scope of the current project but may be something that a future study could investigate.

Further breakdowns of this data can be found in Tables D2-D6 in Appendix D which additionally look at the effect of gender and ethnicity on dropout rate and whether there is any intersectionality between WP metrics and type of medical school (UCAT-testing or BMAT-testing compared to non-testing).

As outlined in the discussion regarding table 4.3 above, the interaction terms did not indicate any significance, likely due to the small proportion of dropouts overall from medical school. Tables D2-D6 show a trend of no significance across most of the WP metrics and measures being used.

It is out of the scope of this thesis to look at the effects of gender and ethnicity in great detail but it would be interesting for a future study to further explore these in greater detail and whether the general trends outlined hold true when broken down by type of medical school.

Beyond year 2, dropouts from medical school are extremely rare and not viable to measure. However, making it through to year 3 does not indicate that a student has successfully

completed their degree. In order to assess whether there are any trends in non-completion of a medical degree, we must look beyond graduation from a medical degree to whether students have registered for and received a PMQ number as discussed at the start of this section.

Table 4.4 shows the number and proportion of students, between 2007-2013, without PMQ registration (therefore assumed to have not completed their studies) by type of medical school. The table indicates that there is a higher proportion of students without PMQ registration at least seven years after commencing their course overall at BMAT-testing medical schools. This differs from dropout rates where non-testing medical schools showed the greatest proportion of dropouts. There is also a marked difference in proportions compared to dropout rates by the end of year 2, with more than double the proportion of students, across all medical school types, not having a PMQ number 7+ years after starting their medical degree.

In the years covered by this data (2007-2013), all medical schools using the BMAT entrance test ran six year medical degree programmes, meaning that, for 2013 students in particular, their PMQ registration was only being measured 1 year after their earliest possible graduation date compared to 2 years for most UCAT-testing and non-testing medical schools where the vast majority of medical schools ran a 5 year degree programme. However, data from earlier cohorts (e.g. the majority of the 2007 cohort would have graduated at least 6 years before this point) would have been unlikely to have been affected significantly by this, as only very low numbers of students are likely to have delayed their graduation this long without having dropped out. The percentage of students without a PMQ from BMAT institutions does increase a little in more recent years, suggesting that a minority of these students may simply have delayed registration rather than having decided not to pursue a medical career. However, even if this is the case, the average proportion of BMAT-testing institution students without a PMQ who commenced their course in 2007-2011 is still, at 8.3%, higher than that observed for students attending a UCAT-testing institution (6.7%) or a non-testing institution (6.2%). As might be expected, given that students would have had at least another five years to complete their second year were the pattern simply a matter of delay rather than drop out, the percentage of students in BMAT institutions not completing their second year of study does not increase with later cohorts. In fact, there appears to be a drop in the rate from 2012, the reasons for which are unclear. Tables D7-D12 in Appendix D show a breakdown of dropouts and non-registration for a PMQ number by HEI-type and year of entry to medical school.

Table 4.4 – The number and proportion of students that did not register for a PMQ number 7+ years after commencing their medical degree by type of medical school

Type of Institution	Total number of PMQ records by type of institution	Number of students without a PMQ registration number	Number of students with a PMQ registration number	Proportion of students without a PMQ registration number
Non-testing	6265	390	5875	6.2%
UCAT-testing	32955	2210	30745	6.7%
BMAT-testing	7170	590	6580	8.2%
Totals	46390	3190	43200	6.9%

Table 4.5 shows the number and proportion of students that are assumed to be non-completers (those without a PMQ registration number 7+ years after having started medical school) by each of the five WP metrics including splits by WP and non-WP for each indicator. The table shows that, across all WP indicators, more WP students do not register for a PMQ number than non-WP students. It also shows that WP students across all indicators have a higher rate of not registering for a PMQ number than the overall non-registration rate.

Table 4.5 – The number and proportion of students that did not register for a PMQ number 7+ years after commencing their medical degree by WP metric

WP Indicator	Total number of PMQ records by WP indicator	Number of PMQ records for WP entrants by WP indicator	Number of WP students without a PMQ registration number 7+ years after starting at medical school	Proportion of WP students without a PMQ registration number 7+ years after starting at medical school	Number of PMQ records for non-WP entrants by WP indicator	Number of non-WP students without a PMQ registration number 7+ years after starting at medical school	Proportion of non-WP students without a PMQ registration number 7+ years after starting at medical school	Total number of students without a PMQ registration number 7+ years after starting at medical school	Total proportion of students without a PMQ registration number 7+ years after starting at medical school
IMD	41595	7725	665	8.6%	33870	2070	6.1%	2735	6.6%
POLAR	41510	5355	420	7.8%	36155	2315	6.4%	2735	6.6%
IDACI	39115	8566	719	8.4%	30549	1833	6.0%	2552	6.5%
TUNDRA	38835	5553	394	7.1%	33282	2130	6.4%	2524	6.5%
ACORN	41525	5710	550	9.6%	35815	2180	6.1%	2730	6.6%

This is a concern in terms of widening participation to the medical profession. There are already a lower proportion of WP students – no matter which WP metric is used – in UK medical schools. These data suggest that proportionally more of them have either not successfully completed their course to make them eligible to receive a PMQ number or are not registering to take up a role as a medical professional post-graduation. We are not able to tell from the data available which of these causes it may have been so it is unclear whether WP students are choosing not to enter the profession or whether they have been prevented from doing so through not satisfactorily completing the degree programme.

Generally speaking, this is an interesting observation and not something that explicitly came up in the qualitative study discussed earlier in this chapter (perhaps unsurprisingly given the low overall rate of non-completion). The one-to-one interview discussions suggested that, although elements of the degree and professional experiences proved challenging, if a student managed to 'survive' the first two years of the course, they were unlikely to change their minds about entering the profession.

Table 4.6 shows the significance values, odds ratios and 95% confidence intervals of the likelihood of not having a PMQ registration number at any type of medical school (non-testing, UCAT-testing, and BMAT-testing) 7+ years after starting their medical degree, per WP metric, based on their quintile/category relative to students from the most privileged quintile/category (i.e. most privileged being quintile 5 for all metrics except ACORN which is category 1). These values were achieved using Poisson regression in SPSS version 25 on the HIC portal.

The table shows that all apart from one WP quintile/category show a significant non-completion rate compared to their most privileged peers. Students in IMD quintiles 1 or 2 (WP quintiles) are 61% and 40% respectively more likely to not register for a PMQ number than their peers in quintile 5 (most privileged quintile). Students in IDACI quintiles 1 or 2 (WP quintiles) are 53% and 40% respectively more likely to not register for a PMQ number than their peers in quintile 5 (most privileged quintile), putting the two deprivation metrics on a fairly similar footing. The two under-representation metrics, POLAR and TUNDRA also show a great probability of non-registration of a PMQ number for WP quintiles students but at a smaller rate than IMD and IDACI. Notably, POLAR quintile 2 students are more likely (29%) than POLAR quintile 1 students (26%) to not register for a PMQ number compared to POLAR quintile 5 students. Whilst both quintiles fall into the WP category, POLAR 2 is slightly less under-represented than POLAR 1 and so you would expect POLAR 1 to have the worst outcomes here. In a similar vein, ACORN category 6 (least privileged) actually has the lowest likelihood of all the ACORN categories compared to category 1 (most privileged) of non-registration of a PMQ number but its value is not significant so should not be considered accurate. However, ACORN category 4 and category 5 (also low privilege, WP categories) show the greatest disparities of all WP metrics with ACORN category 4 students being 70% and ACORN category 5 students being more than twice as likely to not register for a PMQ number compared to ACORN category 1 (most privileged) students. However we need to be mindful that this is likely to be compounded by the overall low numbers causing fluctuations.

Table 4.6 – Significance values, odds ratios and 95% confidence intervals of the likelihood of students not registering for a PMQ number 7+ years after commencing their medical degree at any type of medical school per quintile/category, for each WP metric

IMD Quintile	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
IMD 1	<0.0005	1.61	1.41	1.85
IMD 2	<0.0005	1.40	1.24	1.57
IMD 3	0.001	1.19	1.07	1.32
IMD 4	0.650	1.02	0.93	1.13
POLAR Quintile	**P-Value**	**Odds Ratio**	**95% confidence interval Lower Bound**	**95% confidence interval Upper Bound**
POLAR 1	0.010	1.26	1.06	1.51
POLAR 2	<0.0005	1.29	1.13	1.47
POLAR 3	<0.0005	1.22	1.09	1.36
POLAR 4	0.997	1.00	0.91	1.10
IDACI Quintile	**P-Value**	**Odds Ratio**	**95% confidence interval Lower Bound**	**95% confidence interval Upper Bound**
IDACI 1	<0.0005	1.53	1.33	1.75
IDACI 2	<0.0005	1.40	1.23	1.59
IDACI 3	0.036	1.14	1.01	1.30
IDACI 4	0.434	1.05	0.93	1.18
TUNDRA Quintile	**P-Value**	**Odds Ratio**	**95% confidence interval Lower Bound**	**95% confidence interval Upper Bound**
TUNDRA 1	0.004	1.32	1.10	1.59
TUNDRA 2	0.172	1.11	0.96	1.29
TUNDRA 3	0.017	1.16	1.03	1.31
TUNDRA 4	0.493	1.04	0.93	1.16
ACORN Category	**P-Value**	**Odds Ratio**	**95% confidence interval Lower Bound**	**95% confidence interval Upper Bound**
ACORN 2	<0.0005	1.45	1.28	1.65
ACORN 3	<0.0005	1.20	1.09	1.32
ACORN 4	<0.0005	1.70	1.50	1.93
ACORN 5	<0.0005	2.05	1.77	2.34
ACORN 6	0.314	1.17	0.86	1.58

Dependent variable: PMQ registration number not recorded

Overall, this indicates that, regardless of which metric is used, students that are classed as WP are proportionally the most likely to class as non-completers, either due to not successfully completing their medical degree or due to not registering for a PMQ number with the GMC, without which they are unable to practice medicine. This should be of concern to medical schools as well as to the GMC because it shows that, even the low proportion of WP students that do manage to get into medical school are the most likely to then not complete and therefore efforts to diversify the workforce are further impacted.

Table 4.7 shows the significance values, odds ratios and 95% confidence intervals of the likelihood of not having a PMQ registration number of a student based in a UCAT-testing or BMAT-testing medical school relative to a student in a non-testing medical school. These values were achieved using Poisson regression in SPSS version 25 on the HIC portal.

Table 4.7 – Significance values, odds ratios and 95% confidence intervals of the likelihood of students not registering for a PMQ number 7+ years after commencing their medical degree at UCAT-testing and BMAT-testing medical schools compared to non-testing medical schools

Type of Institution	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
UCAT-Testing	0.176	1.08	0.97	1.20
BMAT-Testing	<0.0005	1.32	1.16	1.50

Dependent variable: PMQ registration number not recorded

As the table shows, the non-completion rate at BMAT-testing medical schools, compared to non-testing medical schools is highly significant. Students in BMAT-testing medical schools are 32% more likely than students in non-testing medical schools to not have registered for a PMQ number 7+ years after starting their medical degree inclusive of all WP metrics and quintiles/categories. Whilst this is likely to be impacted by all BMAT-testing medical schools from 2007-2013 running 6 year medical degree programmes rather than 5 year programmes, this is still something that BMAT-testing medical schools should be aware of, particularly as they are also likely to have the lowest proportion of WP students entering their medical school.

Further break downs of this data can be found in Tables D13-D17 in Appendix D which additionally look at the effect of gender and ethnicity on non-completion rate, as measured by non-registration of PMQ number, and whether there is any intersectionality between WP metrics and type of medical school (UCAT-testing or BMAT-testing compared to non-testing).

Although there were some differences between the effects identified by the different WP metrics, there were also some very clear consistencies. General trends across all WP metrics in Tables D13-D17 in Appendix D include:

- Consistently significant effects for BMAT-testing institutions (compared to non-testing institutions) across all WP metrics, showing that students in BMAT-testing medical schools are the most likely to not register for a PMQ number and, therefore, class as having not completed;
- When using IMD as the WP measure, there is a significant effect of the interaction between WP status and being in a BMAT-testing medical school. This shows that students who class as WP and are in a BMAT-testing medical school are more than twice as likely as WP students in non-testing or UCAT-testing medical schools to not register for a PMQ number with the GMC.

Again, gender and ethnicity effects are outside of the scope of this thesis but it is important to acknowledge that they can also appear to have an effect at this stage in the student lifecycle and future studies may want to look at these effects in detail. However, the biggest concern should be for BMAT-testing medical schools, where students were shown to be proportionally more likely to not register for a PMQ number after completing their degree and where WP students, according to IMD criteria, are the most likely to not register for a PMQ number at least 7 years after they commenced their medical education studies.

4.4 Summary

This chapter investigated Phase 3 of the medical education lifecycle, using qualitative and quantitative data to understand the impact of socio-economic background and type of medical school, according to the entrance test used, on dropout and completion rates at UK medical schools.

We have seen that, although dropouts from UK medical degrees are low, those that do drop out or do not complete their undergraduate course are disproportionately likely to be from WP groups. This aligns with findings from Elmansouri et al (2023) which look further along the training programme and find that students who were a part of gateway programmes into medicine (targeted at WP students) were less likely to pass their membership exam at first sitting. Furthermore, the qualitative section of this chapter suggests that student from historically under-represented backgrounds are most likely to be at risk of dropping out of medical school based on their student experience, not just academic performance. This builds on findings from Gibson Smith et al (2021) who looked at the mechanisms which helped WP students on gateway programmes see medicine as attainable and achievable and prepared them for transition to medical school and identified mechanisms including supportive relationships with staff and peers and establishing a sense of belonging as a university student.

These findings are also in line with the UPP Foundation report (Petrie and Keohane, 2017) and should be of concern to medical schools and the GMC in terms of their efforts to widen access to medical education and to the medical profession. The groups that we wish to encourage into the profession are not only the groups least likely to get into medical school, but also the least likely to then successfully complete their medical degree and become medical professionals. An already small pool of target students that enter medical school is seemingly further reduced during their undergraduate training.

As with the findings of chapter 3, this chapter also showed that BMAT-testing medical schools have the greatest amount of work to do, in terms of supporting historically under-represented students so that they are able to complete their medical education. BMAT-testing medical schools have amongst the lowest offer and entry rates for this group of students but amongst the highest dropout and non-completion rates. It would be interesting to see whether there is a trend in what these students go on to do instead of medicine. For example, are students at BMAT-testing institutions more likely to undertake an A-Level in mathematics and thus have a greater range of better remunerated careers in the City that they opt for instead?

Finally, the qualitative section of this chapter raised a number of important issues that medical schools should be aware of in terms of the on-course challenges experienced by their students. By taking a critical realism approach I have shown that these appear to most affect students from historically under-represented backgrounds and may be part of the reason why this group are most likely to drop out or to not complete. An over-reliance by students on informal peer support structures for information and help with the academic content of a medical degree can end up being exclusionary for the most vulnerable students and also risks potentially inaccurate information being passed on to students. Whilst, in many cases, students may prefer these peer-led informal support structures, it may also be the case that students seek these avenues because they perceive a lack of guidance and information from medical schools themselves in terms of detailed course structure or transition support. Krstić et al (2021) found that WP students had a distrust of formal support structures due to negative on-course experiences, which may also be another reason that students rely more on informal peer-led structures.

4.5 Future studies

This chapter has identified a number of areas where further investigation would further elucidate the challenges of widening participation in medical education and supporting on-course success.

Informal support structures were discussed in section 4.2.4. However, the current study has been unable to address *how* students found out about this support and why they were more aware of it than formal support structures. This is something that may be worth investigating in a future study.

Although there is a body of work in the sector that looks at the networks that students form at medical school, further studies are required to investigate in greater detail how the lack of

socioeconomic diversity in the student body affects students' sense of belonging, particularly in the early stages of medical school.

Section 4.3 investigated the dropout and non-completion rate of medical school students and categorised medical schools by the type of entrance test that they used, keeping the categorisations in line with those used in chapter 3 of this thesis. However, it is unlikely that the type of entrance test used would be a primary factor for dropping out. A future study may want to explore whether there are any other commonalities between medical schools that use the same type of entrance test, that may be more likely to influence dropout rates. Section 2.3 also indicated that students classed as WP were less likely to have registered for a PMQ number, and that this trend was exacerbated in students from BMAT-testing medical school. However, we are unable to establish why this may be from the data that we have for this study. A future study may find it helpful to further investigate the reasons for this and whether there are any trends these reasons provide based on WP criteria.

As with chapter 3, gender and ethnicity interactions with WP and outcomes were largely outside of the scope of this thesis. However, it would be interesting for a future study to investigate this further and identify whether WP status exponentially exacerbates other factors of disadvantage and to what extent.

Linking the qualitative and quantitative aspects of this chapter together, if students' transition into medical school is affecting their performance and outcomes longer term, then this is an area that requires further investigation and something that medical schools may wish to focus on. It is beyond the scope of this thesis, but a future study could investigate whether there is a correlation between academic performance, particularly in years 1 and 2 of the course, and students' sense of belonging/adaptation to medical school.

Looking at post-graduation registration trends in section 2.3, it is unclear as to why WP students are proportionally less likely to register for a PMQ number than their non-WP peers and a further study is needed to investigate this. Is it because they have not successfully completed their course? Or is it because they have opted against taking up a role as a medical professional post-graduation. It is important to understand this and investigate whether medical school can provide any further support to reduce the number of WP students who don't go on to register for a PMQ number to be able to work as a medical professional.

It would also be interesting for a future study to investigate what happens to students who drop out or don't complete. It would also be useful to identify whether there are any specific trends or factors that make certain onward career choices more likely and whether these factor into decisions to drop out.

4.6 Interim recommendations

This chapter has offered some useful insights into the on-course trends and experiences that affect students' outcomes which can be developed into recommendations to support widening participation in medical education.

Section 4.2.2 indicated that there were differences with how transition from key stage 5 to medical school was experienced by students from the state comprehensive sector compared to their peers from the state selective and independent sectors. Students from the state comprehensive sector indicated that they would have appreciated more support with their transition whereas this appeared to be a lesser issue for their peers. It is recommended that medical schools consider how best to support students, in all aspects of the student experience, to transition in in the way that they need rather than taking a blanket approach, recognising that there may be differences in the pre-entry opportunities that students have been exposed to.

Informal support structures and the favourable way they are viewed by students compared to formal support structures was explored in section 4.2.4 of this chapter. However, due to their nature, informal support structures are unlikely to be equitable or inclusive of all and may not provide entirely accurate information or support. It is therefore recommended that medical schools seek to understand why these type of informal support structures are students' first port of call and then explore ways to formalise and institutionalise effective peer support models whilst maintaining the destigmatised and accessible nature that makes informal networks appealing.

Although there are understandable reasons why medical schools do not wish to share materials such as past exam papers (for example, that they will reuse the questions that are set), they also need to be mindful of the inequitable impact that the current approach may have. It is recommended that some consideration be given as to whether it would be better to share some materials and control the narrative about what resources are in the student domain rather than student societies being in a position where they essentially specialise in various aspects of the academic process and dictate who has access to them based on

society membership. The current structures are likely to negatively impact historically under-represented students who are least likely to be able to afford to pay membership costs for societies and thus exclude themselves from such networks of peer support.

One of the on-course challenges, beyond the first year, that was identified in section 4.2.5 of this chapter was around the scheduling and format of assessments. Since submission of this thesis, universities and courses everywhere have had to reconsider their assessment practices due to the global pandemic, although many programmes have reverted back to pre-pandemic assessment scheduling. It is recommended that medical schools consider whether continuous observation as a form of assessment might provide better opportunities for all students to flourish, regardless of the type of learner they are or the type of assessment techniques they may have been exposed to in their previous school or college.

Section 4.2.6 focused on academic study skills and highlighted the disparities in the confidence of students from different educational backgrounds in deploying these skills, with students from historically under-represented backgrounds most likely to be negatively impacted. It is recommended that medical schools consider timetabling in explicit opportunities for all students to enhance their study skills to ensure they are teaching the academic skills that they are expecting on the course and avoiding assumptions that everyone has been taught these skills in their prior educational establishment. Although this recommendation links to the first recommendation in this section, this one relates specifically to the study skills expected of students in order to succeed on the course rather than the holistic aspects of the student experience.

In findings similar to those in chapter 2 around wanting a better understanding of course structure and expectations, students indicated that they felt unprepared for how big the step up in learning, intensity and pace of teaching was at medical school and between years of study. It is recommended that medical schools consider how they might be more explicit about course information such as timetabling, curriculum content and assessments to reduce anxieties and feelings of being overwhelmed and needing to catch up that manifest in students, particularly from the state comprehensive sector. It is also important for medical schools to consider how they can offer more prominent support services to their students around learning techniques, and time management to aid with a smooth transition on to the course and throughout different years of study.

Chapter 5 further reflects on transitional support to and through medical school and discusses recommendations based on the findings in this chapter.

The next chapter is the final chapter of this thesis and will bring together findings from all the data chapters to discuss trends that have been identified and make recommendations for the medical education sector to further respond to the challenges of widening access and participation in medical education.

Chapter 5:

Summary and final discussion

Introduction

This chapter brings together the findings from each of the three results chapters and discusses the identified challenges of widening access to medical education. It considers the both the qualitative and quantitative data, along with the practical experiences of the researcher as an academic focused on enhancing student success and ensuring an equitable experience for all students, to develop recommendations for medical schools and recommendations for future studies.

5.1 Key findings and contribution to the literature

This thesis uses a mixed methods approach to understand the perceived, experiential, and evidenced challenges of widening access to medical education. This approach allows an overview of what the data tell us in relation to what students perceive as the challenges. By utilising the critical realist framework, I have been able to explore what the underlying causes might be for the lack of applications and offers for places at medical school for students from historically under-represented backgrounds identified in the quantitative chapters of this thesis. By exploring the fundamental issues and barriers facing students from historically under-represented backgrounds, I have been able to start building a picture of where some of the disparities may lie.

The studies described in Chapter 2 highlighted that, although all medical applicants experience some level of difficulty or challenge in the application process, these tend to be further exacerbated for students from historically under-represented backgrounds. This is in line with findings from Sartania et al (2016) who found that differences in economic, social and cultural capital impact students' chances of admission to medical school and that access to finance, school support and work experience were particular issues for WP students. This builds on the work of Greenhalgh et al (2004) who found that lower socio-economic students saw medical school as 'culturally alien' and were more likely to have a negative framing of the profession. However, whereas Greenhalgh et al suggested that cultural framing of career choices may play more of a role in the low application rates of historically under-represented students than low levels of factual knowledge, Harrison et al (2022) found that many first-time applicants to medicine needed more help and guidance to make informed choices, with less advantaged groups self-reporting as being at a disadvantage when applying due to limited access to IAG. Considering this through a critical realist lens, an equal application process does not necessarily lend itself to an equitable application process and this may be one underlying cause for the disparities in application and offer ratios. Medical schools need to be aware of students' vastly varying levels of access to, and

confidence in accessing, IAG and support networks, potential negative reinforcements of the medical profession, and how this can impact a student's application to and experience of medical school. In addition, students from historically under-represented backgrounds appear to be less aware of the need for creating social capital once in medical school, or how do so effectively (Nicholson and Cleland, 2014) and this should be taken into account as part of any widening access and participation initiatives and policies. Exploring this through Bourdieu's concept of habitus, allows Balmer to consider the collective trajectory of students and the individual trajectory of each student (Balmer et al, 2017). Students have not had equal access to resources or experiences at the point of application, and thus, in order to widen access to medical education, we need to be more mindful of this disparity and work to ensure an inclusive application and selection experience. However, it is important not to take a deficit model approach to this work which focuses on 'fixing' the perceived deficiencies of students (Jones and Thomas, 2006; Sheeran et al, 2007; O'Shea et al, 2015) as this could negatively impact students' perceptions of how they would fit in and discourage them from applying (Greenhalgh et al, 2004; Frost and Regehr, 2013; Gartland, 2014; Razack et al 2015; Alexander et al, 2017).

Chapter 2 also explored the impact of key influencers on students during the process of applying to medicine, with students from historically under-represented backgrounds least likely to feel supported and most likely to be discouraged from applying because medical school 'wasn't for the likes of them.' This supports findings from McHarg et al (2007), Cleland and Nicholson (2013) and Alexander et al (2018) whose research respectively showed that teachers may hold stereotypical notions about the socio-economic background of medical students, that they may actively discourage student from applying to medicine and that some teachers perceived medical school applications to be 'risky' thus limiting their ability to advocate for widening access. Despite McHarg et al (2007) arguing almost 20 years ago that a strong message should be conveyed to teachers that academically able students should be encouraged to study medicine irrespective of their socio-economic background, Chapter 2 shows that there are still schools where this is not happening and also explored the challenges faced by teachers in supporting students through the application process for medicine. Martin et al (2018) looked at what may deter school aged students (Year 9-12) from applying to medicine and also found that schoolteachers may not be equipped to support potential applicants to gain a comprehensive knowledge of the vocation and application process. My work shows these deficits were most keenly felt by schools in the state comprehensive sector and reinforces the need for additional support for these teachers.

Mental wellbeing issues were also highlighted in Chapter 2 as a challenge of balancing an already demanding A-Level schedule with the various requirements and/or perceived requirements and pressures of making a successful application to medical school, to an earlier deadline than peers applying for other subjects. It is highly likely that these mental wellbeing issues have been further heightened during the pandemic. This is corroborated by Montero-Marin et al (2023) who compared the mental wellbeing of secondary school students exposed to the pandemic to those who hadn't been exposed to the pandemic and found that there was an association between this exposure and worsened outcomes in mental health. At the end of this thesis I include some specific recommendations of the ways in which medical schools might reduce this burden.

Chapter 3 indicated that progress being made in application, offer and entry rates for students from historically under-represented backgrounds is still disproportionately behind those from more affluent backgrounds and this is particularly so in medical schools that use the BMAT admissions test as part of its selection process. This is the first study using a large amount of data from UKMED to examine directly the relationship between school type and offer rates based on admissions tests taken, building on the work of Steven et al (2016), which looked at the socio-economic status of offer holders over a three year period at 22 medical schools that used the UCAT entrance test, and contributes to discussions around contextualising medical admissions. Students from historically under-represented backgrounds appear to be unduly deterred from applying to BMAT-testing institutions compared to UCAT-testing institutions but findings in Chapter 2 also indicate that they feel at a disadvantage in accessing support for both types of admissions test. The theoretical approach that I have taken has allowed me to identify some possible reasons for this (albeit with the caveat of small numbers) and it appears that limited access to IAG specifically related to medicine and medical admissions tests directly impacts the confidence and feeling of preparedness of state comprehensive students sitting these tests. Although the tests are designed not to advantage those who practice and prepare for them, my findings suggest that the self-efficacy that comes with having preparation support and the perceived disadvantage of not having such support, may well have an impact on students' ability to perform. Now that the BMAT admissions test is no longer available to medical schools, it will be important to assess the impact that this has on application and offer rates for students from historically under-represented backgrounds to those medical schools that previously used the BMAT test. It is too early to measure the impact at the time of submitting this thesis but this would be a valuable future study.

Chapter 4 highlighted that students that drop out of medical school are disproportionately likely to be from historically under-represented backgrounds and that this group is most at risk not just because of academic performance but also their overall student experience and sense of belonging. This is in line with findings from other countries such as in the USA where marginalised groups are found to be the most likely to drop out of medical school (Nguyen et al, 2022) and in the UAE where students were found to have dropped out for a range of academic and non-academic reasons including impact on mental health (Hefny et al, 2024). Ravulapalli et al (2024) also found that WP students at medical schools in the UK were more likely to face mental health challenges and financial pressures, impacting their student experience. Maher et al (2013) reviewed attrition rates from medical schools across a number of countries and discovered that the only consistent variable shown to be associated with dropout was academic preparedness, which also arose as an issue in the qualitative findings of this chapter. BMAT-testing medical schools were shown to have amongst the highest dropout and non-completion rates for historically under-represented students, despite also having amongst the lowest offer and entry rates. Again, now that the BMAT is no longer available, it would be useful to measure dropout rates at medical schools that previously used the BMAT admissions test to see if there is any significant difference in outcomes. This chapter also discussed the informal peer networks that students appear to rely on for support and information regarding course content and assessment and the danger that these networks can be exclusive, impacting the student sense of belonging and unwittingly passing on inaccurate and/or out-of-date information. This substantiates findings from Woolf et al (2012) that peer networks play an important role in student progress and outcomes. They found that students tended to build friendships and networks with students who had similar demographics to their own and that the closeness of friendships related to subsequent exam performance.

The key message from across all of the data chapters and findings is that, whilst applying to medical school is a difficult undertaking for all students, it is markedly more difficult for students from historically under-represented backgrounds. Students who are historically under-represented are less likely to receive accurate and timely IAG about the process of applying to medical school, are thus less likely to apply to medical school, are less likely to receive an offer from a medical school, are less likely to succeed in attaining a place at medical school and are more likely to drop out of medical school. The key learning point from these findings is that medical schools need to re-evaluate their approaches to widening access and participation to ensure structural and perceived barriers that may have previously gone undetected are addressed and do not deter or impact students from historically under-represented backgrounds.

Critical realism has fed into all aspects of my data analysis and findings, allowing me to surmise the *why* and not just the how and what of issues that have a greater negative impact on students from historically under-represented backgrounds than on their more advantaged peers. Although there are other theoretical approaches which may have provided slightly different outcomes, I believe that using critical realism has allowed me to authentically tell the stories of the students who participated in this research to build a more accurate understanding of the challenges of widening access to medical education. Yes, there are systemic barriers to successfully entering and succeeding at medical school (such as access to timely and accurate pre-entry IAG and equitable transition support), but there are also a number of perceived and individual barriers (such as a perceived requirement for work experience in a hospital setting and students' sense of on-course belonging) which may impact students' self-efficacy and thus their ability to fulfil their true potential. Critical realism has allowed me to question the assumptions that are made of students by medical schools in the application and selection process as well as the assumptions of knowledge of students when they start at medical school. This has enabled me to investigate the premises of equality and equity and the extent to which medical schools differentiate between them in their admissions policy and on-course provision.

My approach to this study has allowed me to unearth some important differences in using different metrics to measure WP. Chapters 3 and 4 show that metrics measuring deprivation do not correlate with metrics measuring under-representation and the effects shown by each group of measures varies depending on the stage of the admissions/student lifecycle being investigated. This raises a very important question as to how students are currently being labelled as WP – either by medical schools or by the OfS who track and collect this information. Are the most effective combination of metrics being used to identify and target WP students for additional engagement?

It also raises questions regarding what exactly is defined as under-representation compared to what should be defined as under-representation. Using a uniform measure, such as POLAR or TUNDRA, is likely to be misleading because under-represented groups at one HEI or medical school will not directly correlate with those that are under-represented at a different institution. There is an added level of complexity when you then consider that most applicants will also apply to four different medical schools and may not be classified as under-represented in the same way at all of them. This needs serious consideration from both the OfS and from medical schools and HEIs themselves to ensure that the students that need the most support are the ones that actually receive it. It is also likely to mean that the

current methods used to report WP student success are inaccurate because the measures being used are not the most inclusive or effective for each stage of the lifecycle that is being reported on. The most effective single measure that is currently available appears to be ACORN, which is also the least used (and not used officially by the OfS) because it is a commercial product that requires a license. Universities have to pay for ACORN, which is likely to reduce its wider use and, indeed, Imperial College London has now stopped using it and focused instead on using other, freely available metrics. This limitation should be of concern to medical schools and policymakers who may wish to consider how they can make this metric more widely accessible and integrated into the portfolio of measures they use to identify students most in need to support or look at how they can better use the data available to develop an alternative metric. There is a danger that the premise of WP is getting lost in the politics and reportable data is prioritised over effective interventions to widen participation. Having a nice, neat and easily-presentable 'x% of student entrants were WP' may benefit a university in relation to its commitments with the OfS but, as this study has shown, it may be concealing more than it illuminates when it comes to the realities of historically under-represented students. As I have learned by using a critical realism approach, the realities of historically under-represented students are much more complex to identify and represent.

Although there have been attempts to combine metrics to come up with a more holistic measure, such as UCAS' Multiple Equality Measure (MEM) and a UKMED multidimensional measure of WP status, (UCAS, 2018; Lambe et al, 2018), the key point to consider here is what metrics the OfS use to 'officially' indicate a student's WP status. As indicated, the two measures that the OfS use, at the time of writing, appear to be not fit for purpose. This conclusion is supported by a number of research projects and reports, including, most recently at time of writing, a report published by the Sutton Trust in May 2021 (Jerrim, 2021). This report states that POLAR is a problematic measure as it was not designed to measure socio-economic disadvantage and is very poorly correlated with low family income, and that TUNDRA suffers from similar limitations. POLAR does not, for example, accommodate the nuances of London where you will find wealthy and advantaged members of the population in the same neighbourhood/postcode as people from deprived and disadvantaged backgrounds. It should also be noted that holistic measures like those developed by UCAS and UKMED which aim to address some of the issues of using a single measure to assess a student's WP status by combining the measures into one, may be masking some of the divergent effects that were identified in Chapters 3 and 4 of this thesis when comparing the performance of each measure. They also do not include the ACORN metric, which was used in Chapters 3 and 4 of this thesis and is indicated by the Sutton Trust in their report as

the best area-level measure available as it measures households at a very localised level (around 15 households), is designed to be comparable across the UK and has a reasonably good relationship to low household income. (Jerrim, 2021).

This thesis sits in a research field that is comparatively under-developed in the UK when viewed against other areas of HE study and widening access and participation. Where there has been specific focus on widening access to medicine, this has tended to be through the lens of the medical schools themselves. For example, Cleland et al (2012) focused on identifying best practice in the selection of medical students; Mathers et al (2011) investigated the efficacy of foundation and graduate entry programmes in widening participation and Curtis et al outlined how widening access has worked in practice at one medical school by through its recruitment and admissions practices (2014a) and its curriculum design and support for students (2014b). This thesis has aimed to turn this approach on its head by investigating the challenges from the perspectives of applicants and students themselves and those of their key influencers. This approach sits in a developing body of work across the sector. Even in the timeframe of this PhD, there have been dedicated research projects focused on equity in medical education, looking at the applicant experience, from both the HE sector and the medical professional fields. A notable development in recent years has been the UK Medical Applicant Cohort Study (UKMACS) which is funded by the National Institute for Health Research (NIHR) and is led by UCL Medical School, details of which can be found on the UKMACS website (https://ukmacs.wordpress.com). This study focuses on the application stage of the medical student journey and the research team have undertaken a range of qualitative and quantitative studies to identify whether and how an applicant's background affects their choice of medical school and how they sourced and used information to inform these choices (Woolf 2019; Rees 2019; Harrison 2019). Other studies investigate specific aspects that may work as barriers to attracting applicants from historically backgrounds, such as Alexander et al (2017) who investigated how medical school websites framed their approach to widening access and concluded that they do not present non-traditional applicants as bringing gains to medicine through their diversity and Wright (2015) who focused on personal statements for medical school applications and surmised that there was a unintended link between a student's access to social capital and their ability to demonstrate commitment and motivation in their personal statement. This thesis adds to the discussion of the pre-applicant and applicant experience of medical school by using a critical realism approach to look further into the factors that contribute to a student's decision-making process when choosing which medical schools to apply to, but also when considering whether to apply to medical school at all.

Building on earlier work focusing on social capital, how students formed networks in medical school and how this impacted their achievement (for example, Woolf et al, 2012; Vaughan et al, 2015), which introduced the concept of ethnicity and gender playing a role in student experience and outcomes, there is also a growing body of work focusing on the on-course experience of medical school students from WP backgrounds. Krstić et al (2021) focussed on the undergraduate experience of WP students and found that the challenges of their prior disadvantage were still issues when they were in medical school and made the on-course experience more difficult for WP students. They found that unfamiliarity with higher education and lack of representation of WP staff in faculty can deter help-seeking behaviour and breed distrust. They also looked at student networks and found that WP students struggled to establish social networks with their more advantaged peers and often formed relationships with students from similar backgrounds instead. Elmansouri et al (2023) found that WP students who came through gateway programmes were less likely to pass their membership exams at the first sitting and were also less likely to be offered a level 1 training position on initial application. Although Elmansouri et al were unable to establish the reasons behind their findings, looking at this through a critical realism lens and in the context of studies such as Krstić et al, sense of belonging and strength of on-course support are likely to be factors that negatively affect this group of students. Research papers tend not to highlight this explicitly but, anecdotally, there is a lot of evidence that students who come through gateway programmes for medicine struggle to integrate with students who have come through traditional channels and can sometimes be seen by their peers as having received an unfair advantage rather than having earned their place on the course. This type of stigma is likely to have a negative impact on gateway students' sense of belonging and thus their capacity to perform to the best of their abilities. The findings of this thesis reinforce these studies: the work described in Chapter 4 also indicated that the experiences of students from historically under-represented backgrounds do not automatically improve or become equitable when they take up their place at medical school, and suggests that medical schools need to explore whether their current transition and induction processes are equitable or simply equal. Understanding the concept of what is equitable versus what is equal, and making appropriate modifications to ensure equity of support and student experience are one way that medical schools can improve the transition experience of students from historically under-represented backgrounds.

5.2 Reflections on the research design and process: strengths and limitations

Taking a mixed methods approach to this project has been an important and positive step in allowing examination of a number of different perspectives and factors that feed into what

might be a barrier to widening access to medical education and reflects my aim to explore cause as well as effect. All data that has been collected for this project has proven to be a valuable source of information and insight. Being able to collect primary, qualitative data alongside using secondary, quantitative data provided an opportunity to utilise my critical realism framework to understand where perception meets reality and where there are disparities that we need to further investigate and understand.

Whilst the interviews and focus groups only reached a small number of people, they played an important part in providing data that facilitated understanding not just of the *what* of challenges that are perceived by the people that are affected but also the *why*. Being able to further interrogate or expand lines of inquiry by collecting data in real-time was highly valuable and generated some additional areas to investigate in other areas of data collection. Although it could be argued that undertaking a greater number of interviews and focus groups might have enhanced the dataset, I appeared to be reaching thematic saturation with both. There were clear themes coming out of the data very early into the process, for both the interviews and focus groups, which continued throughout and ultimately provided assurance that there would be limited benefit to further data collection in this format. A wider geographical spread may have provided additional insights, but it was not feasible to do this within the timeframe and budget available. This is where the questionnaire provided an important, additional angle.

The questionnaire was a highly valuable source of data, both in terms of volume of responses and geographical reach. It allowed a shift slightly away from an otherwise south-eastern England perspective, which had been the focus of the interviews and focus groups. Although it didn't offer a complete national picture, there was at least some non-South East representation to provide assurance that the landscape was fairly similar regardless of geography in terms of the key challenges and themes that emerged. The volume of responses meant that the questionnaire also provided an opportunity to assess the relative impact of some of the issues that had arisen in the interviews and focus groups and an opportunity to sense-check that they were widespread issues. For example, challenges around accessing relevant work experience opportunities were not limited to a specific geographical area and were a challenge, particularly for students from the state comprehensive sector, across all regions from which we received responses to the questionnaire. Upon reflection there were some aspects of the questionnaire that could perhaps have benefitted from more explicit definitions to ensure that respondents understood the question in the way that it was intended. For example, the questions relating to allocations of time, the results of which are displayed in Chapter 2, figures 2.21-2.27, have

a lot of unknowns in relation to students' interpretation of the concept of their time. We cannot be sure whether they interpreted 'their time' to mean usual school hours, hours in a normal working day, every waking hour or even something else completely. We also do not know whether the proportion of time they spent on different activities reflected what they felt most important or whether it reflected what they enjoyed or felt most comfortable with. Although this does not invalidate these findings, it means we are not able to say with certainty that all respondents were responding to the question with the same understanding of what was being asked. This would have been easy to rectify with a clarifying statement, had this been considered at the time of designing the questionnaire. Another example of this is in the question relating to whether students felt they had had the same opportunities as other school students (from within their own school and from other schools), the results of which are displayed in figure 2.48. A number of state selective and independent school students responded 'no' or 'not sure' to this question and it is difficult to know whether this is because they feel they have had fewer opportunities or whether it is because they recognise that students from the state comprehensive sector are likely to have had fewer opportunities. Although we can get a sense of the interpretation of this question from having asked a similar question in the focus groups and one-to-one interviews, it is something that I now recognise as slightly ambiguous.

The largest quantitative dataset that this thesis was able to incorporate was the secondary data shared by UKMED. Being able to use UKMED data provided a much wider, national picture of application and entry to, and completion through, UK medical schools, thus allowing a more nuanced set of comparisons to be made. Being able to group medical schools by one of their key entry criterion (the admissions test they use) enabled a comparison between groups of medical schools and where their strengths and weaknesses lie on the widening access and student success agenda. However, grouping medical schools by the type of admissions test they use does not reflect other similarities and differences between them which may also identify other trends not covered in this thesis.

The UKMED dataset is a hugely rich source of information, however, it is also an evolving dataset; there are gaps in the datasets, and previously missing and additional data are added at irregular time points. Whilst this is an understandably lengthy process due to the various external data providers that need to be engaged in the process and the different permissions required, it meant that there were elements of intended analysis that were not possible with the dataset provided by UKMED, such as measuring mean BMAT and UCAT scores against success rate and WP markers, because much of this data was missing at the point of gaining access to the dataset. Other researchers have also analysed UKMED data

in different but complementary ways, for example, to compare the undergraduate outcomes of students from gateway medical programmes and standard medicine courses (Curtis and Smith, 2020). Curtis and Smith found that there may be some modest evidence showing that gateway courses allow students from under-represented groups to achieve greater academic potential and close the gap in attainment compared to peers on standard entry medicine programmes. There is a lot more that could be investigated in this area using the UKMED dataset but it may be more effective to wait for more cohorts of data to be added to allow more nuanced analysis of specific aspects of the medical education lifecycle.

Another limitation of the focus of this thesis is that it does not holistically consider historically under-represented students. Whilst HE participation rates and socio-economic status are very significant areas of under-representation, the project would benefit from also focusing on other groups such as care leavers, young carers, mature students, and those with disabilities and/or learning difficulties. Whilst all of these groups, if present in the data, will have been included as part of the measures that have been used, it would have been interesting to draw these groups out individually as well as to investigate how they fare comparatively. There are two reasons why these groups were not included as separate categories in this project. Firstly, the scope of the project was already wide, and further widening it may have resulted in resource being spread too thin. Secondly, these groups were likely to be too small in the available dataset to allow any meaningful analysis to take place. Of course, this second point in itself is reason enough to recognise that there are access challenges that need to be addressed for these groups, but it was felt that such analyses would be more effective as a large independent study rather than as an additional subcomponent of the current project.

One other limitation to mention here concerns the student success aspect of the study. Although Chapter 4 looked at dropout rates for different groups and explored some aspects of the student experience, it would have benefitted from being able to investigate whether there are any specific assessments that have the greatest impact on failure/dropout rates. Whilst assessment data will be available at a local level, at each medical school, this is not yet comprehensively available on a collective level on UKMED; in the future this could potentially provide a powerful narrative to support the widening participation agenda.

The final reflection to highlight here is that of personal reflexivity; as the researcher, when undertaking the project. I am mindful that, having worked as a widening access and participation practitioner for a long time before starting this PhD and as an academic focused on student success over the past few years since commencing my research, I am viewing

this work through a particular experiential lens which may have influenced the way that I designed the project and interpreted outcomes. It is very easy to 'know' what you are looking for when you have worked in this field for a long time. However, a number of measures were taken to offset any biases I may have brought to the project.

Firstly, two of my research supervisors, including my main supervisor, do not have backgrounds directly related to widening participation; rather, this is an area that they have worked on tangentially in their roles as medical educators. It is an area that they both understand and appreciate but have not spent as much time working in as I have. This meant that, when designing the research project and looking at outcomes, they were both able to bring their quantitative and qualitative research expertise with relative objectivity to provide appropriate guidance. My third co-supervisor was then able to provide WP expertise as required to ensure the project remained relevant and did not diverge too much from the proposed agenda.

In interpreting the findings of the qualitative aspects of the study, to cross-check the level of bias I may have brought to the analysis, a third party, who is a qualitative research expert with no background in WP, was brought in to audit the data and provide an objective perspective on emerging themes. The auditor's role was to check that important material is accurately represented and that cross-analysis faithfully represents the raw data. (Hill et al, 1997 as cited in Hill et al, 2005) The themes that this researcher identified matched those I had identified, supporting the approach I had taken to my interpretation.

5.3 Thesis recommendations

A series of interim recommendations were made in chapters 2-4, based on the findings of the relevant chapters. This section brings together the key findings from across all three data chapters and put forwards seven recommendations that it is felt are both the most feasible for medical schools to implement, whilst also having the potential for a marked impact on widening access to medical education. It is hoped that medical schools, and other relevant parties, will consider all of these recommendations with a view to further enhancing and promoting inclusion and equity in the process of applying to, entering and completing a medical degree programme. However, it is acknowledged that not all of these recommendations will be relevant or practicable for all medical schools. The recommendations have been made by considering the findings in chapters 2-4 of this thesis, and sense-checked using the personal experience and insight acquired during my professional employment working directly with medical school applicants and, subsequently, with medical school students who were studying throughout the pandemic, which allowed

me to make considered judgements about what might be feasible. Many of these recommendations are likely to have a positive impact on all students applying to and entering medical school, regardless of educational or socio-economic background, but it is hoped that they will have a particularly positive effect for the students who most need support to truly widen participation in medical education.

The key recommendation of this thesis is to review the metrics that are currently used to designate a student's WP status. The data shows that the measures most commonly used at the time of this research, including those used by official government bodies to report progress, had different relevance at different points of the student lifecycle and more consideration needs to be given as to which measures are most effective in capturing WP students at each point in the lifecycle. Though progress is being made in this area, it is too early to tell whether changes made at national policy level accurately reflect the best course of action at an institutional level. In order to truly measure their widening access and participation success, medical schools need to understand what demographic markers (including any intersectional markers) are genuinely under-represented in their student body, where in the student journey these characteristics may become under-represented, and which type of metric would be most suitable to measure these characteristics.

Recommendation One: Based on the findings in Chapters 3 and 4 of this thesis, medical schools should review the metrics they are currently using to identify applicants/students who are classed as WP/historically under-represented. Medical schools need to analyse their own admissions and performance data to understand what the WP markers that they currently use actually reflect and whether they are effective at capturing under-representation in the specific context of their medical school. The quantitative data used in Chapters 3 and 4 of this thesis highlighted that there are two clear areas that metrics look at when measuring disadvantage – either socio-economic status or under-representation – and it is important that medical schools know how and why they are using the metrics that they do and whether the metrics being used are the most effective for measuring widening access and participation at their medical school. Medical schools also need to understand at which point in the student journey this information is relevant, as Chapters 3 and 4 also indicated that different metrics had different effect sizes at pre and post-entry level. For example, is IMD a more accurate reflection of disadvantage and under-representation at the pre-entry/application stage of the student lifecycle but TUNDRA more effective as an under-representation metric at the on-course stage of the lifecycle?

Recommendation Two: Medical schools should review the current information and resources that they offer for potential applicants. As found in the focus groups, one-to-one interviews and questionnaire data used in Chapter 2, many students, particularly from backgrounds that we are trying to encourage into medicine, find it difficult to access and/or navigate the information that they need to make an informed decision about whether and how to apply to UK medical schools. Students would benefit from a clear breakdown of what timescales they need to work to and what needs to be done at each stage of study. For example, a breakdown of key decisions that they need to make in Year 11, Year 12, Year 13 etc. may help students who currently feel like they are playing catch up with the application process and have not received this information from their school or college. Reviewing information that is currently on websites to ensure it is easy to access and navigate, and inclusive for those who may be unfamiliar with this type of digital engagement, would be a highly valuable practice that would allow medical schools to consider whether their webpages are built around an understanding of the users who actually experience it rather than their assumptions on what is needed.

Recommendation Three: Medical schools should re-evaluate what they expect from medical school applicants. The focus groups and one-to-one interview data used in Chapter 2 highlighted issues around the mental health impact of the demanding application process for medical school. Whilst it would be unfeasible to completely overhaul all aspects of the process, there may be aspects that could be streamlined and/or made more explicit to reduce the negative impacts on students' mental health. For example, being more explicit and specific about how much work experience is required and what settings are acceptable – and ensuring this is reflected in how students are assessed at the selection stage (i.e., having lots of additional work experience shouldn't advantage students during the interview stage). Also outlining what students should be trying to learn from work experience may help students from historically under-represented backgrounds who may otherwise not get support with this aspect of the application process. These are small but feasible steps that medical schools can take to help alleviate some of the pressures and concerns that students face when applying to medical school.

Recommendation Four: Medical schools should be transparent about timescales between application and offer. The focus groups and one-to-one interview data discussed in Chapter 2 highlighted that some students felt a particular strain on their mental health from applying to medical school much earlier than many of their peers applying for other courses and often not hearing back until after them (and also not knowing when they will hear back). It would be beneficial to students if medical schools were able to indicate a very clear timeframe

(rather than a vague statement) about when they will hear back about their application so that they can mentally prepare but also plan – either for interviews or for considering alternative pathways if they have been unsuccessful.

Recommendation Five: Medical schools should consider developing support for teachers, including CPD opportunities. The focus groups, one-to-one interviews and questionnaire data discussed in Chapter 2 highlighted the vast disparity in careers IAG resource between schools from the different educational sectors, which negatively impacted students from the state comprehensive sector the most. It would be useful for medical schools to work more closely with the state comprehensive school and college sector to provide support, up-to-date information and resources regarding the application process and any changes to requirements etc. in an easily accessible and digestible format. This will enable them to provide effective advice to their students rather than relaying out-of-date information or relying on students to update them. Giving schools with low number of applicants/entrants to medical school specifically targeted CPD opportunities would help break down any biases or prejudices they may hold about the suitability of the application process/medical profession for their students and support staff to feel confident in conveying appropriate information and guidance on the medical school application process to their students. However, the types of schools and colleges that are most likely to benefit from this additional support are also the ones that are currently least likely to engage. This is usually due to resource shortages as much as lack of awareness of current offerings. Thus, medical schools will need to take a proactive and compensatory approach to engaging 'hard-to-reach' schools and colleges. There might, for example, be a more concerted effort from the sector to more widely advertise the MSC's resources outlining the entry requirements for all UK medical schools (see https://www.medschools.ac.uk/studying-medicine).

Medical schools may also wish to consider a single point of contact that state comprehensive schools and colleges can contact to gain further advice or discuss complex student cases with to increase the likelihood that staff will make contact and get the support that they need.

Recommendation Six: Medical schools should develop a standardised approach to sharing information about their course. In making a concerted effort to work in unison on providing clear information and resources for students and their key influencers, medical schools can help to reduce the reliance that students currently have on 'unofficial' platforms, as indicated in the focus group, one-to-one interview and questionnaire data discussed in Chapter 2 of this thesis and reduce duplication of effort. Developing a joined up approach to information,

advice and guidance would be of benefit to all stakeholders and remove an additional layer of stress and confusion for students. The Medical Schools Council already has a repository of information on the entry requirements at different medical schools (see https://www.medschools.ac.uk/studying-medicine/how-to-apply-to-medical-school-in-the-uk/entry-requirements) however, this thesis recommends extending this service to provide more detailed course information to clarify knowledge that it is assumed students have. This may help to alleviate some of the issues raised by students in Chapter 2 regarding understanding the differences between medical schools and feel more prepared for starting at medical school. Such a central repository may also provide students with an opportunity to fully understand and evaluate which medical schools might be the best fit for them based on accurate, up-to-date, and transparent information. As part of this process, it is recommended that medical schools also make a concerted effort to advertise the existence of the central repository to increase awareness of the resource and, hopefully, reduce reliance on 'unofficial' platforms.

Recommendation Seven: Medical schools should review their communications with students transitioning into the university. We know that students are likely to feel anxious, over/under confident etc. regardless of what information is provided to them but, nevertheless, we should be able to come up with systems that support students to feel less under-prepared and overwhelmed. This is particularly important for students from the state comprehensive sector, who may benefit from additional information and reading materials before starting their studies. The one-to-one interviews data discussed in Chapter 4 of this thesis highlighted that these students felt less confident compared to their peers from the state selective and independent sectors, suggesting that improved pre-arrival communication could help alleviate their anxieties and ensure they feel their prior learning is on par with others.

It is also important for medical schools to review their provision for current students and reflect on how they can make support services more prominent to their students without it being perceived as remedial. Students need to be taught different ways of learning at university level and how to manage their time and wellbeing in a new environment where they may also be learning to be an independent adult for the first time. Medical schools should look at how such support can be incorporated into their curriculum and pastoral offerings to facilitate a smooth transition on to the course and throughout different years of study. A formalised peer support structure informed by student experience could provide the benefits of both approaches by combining grassroots acceptance with institutional resources and quality assurance.

5.4 Recommendations for future work:

There are a number of areas that have been identified across this thesis that require further investigation to better understand their effects. Below are some additional recommendations for future work to further understand the challenges of widening access and participation in medical education.

A further study may wish to look at wider markers of under-representation within the medical profession such as those who came through the education system as young carers, those who have been in care themselves and those with disabilities and learning difficulties. These groups currently make up too small a proportion of applicants and post-applicants to statistically investigate individually, but a future study may wish to run a qualitative study to better understand the challenges of these groups and why they are unlikely to apply to study medicine.

Metrics need to be rigorously tested to understand whether using them cumulatively may provide a more holistic and effective assessment of different aspects of disadvantage than any single measure. Further work is needed to test whether weighting different metrics at different points in the student lifecycle may be more effective for identifying and supporting those students most in need. This would then provide a more detailed understanding of metrics on which other recommendations should be implemented.

Since writing this thesis, the OfS have implemented a number of changes that affect the way that WP is now measured and what HEIs have to report in their APP. Some of the most notable changes in relation to this thesis include the use of IMD and TUNDRA as metrics on the OfS access and participation dashboards. Under a completely new senior leadership team, the OfS no longer relies on POLAR as its primary measure of disadvantage, which is a huge step forward in more authentically capturing disadvantage and is in line with the findings of this thesis that it is not a reliable measure on its own. In addition, the OfS has made available what they call ‘ABCS measures’ which are a group of seven measures, including IMD, IDACI and TUNDRA, encompassing all stages of the student lifecycle to calculate predicted outcome rates for each of the student groups that they use in their modelling data. (OfS, 2022a). This allows users of the dashboard to input characteristics for any or all of the measures to derive a quintile for an individual student. For example, using the ABCS measures tells us that a Black Caribbean, male student who is eligible for free school meals and falls into IMD, IDACI and TUNDRA quintiles 2, would present as being in Access quintile 1 which is the least likely to access higher education. Although this could

prove helpful for medical schools in terms of understanding how their applicant pool fits into OfS measures of WP, assessing this through my critical realism framework, it could also be an incentive for medical schools to cherry pick the 'most WP' applicants to make an offer to and thus end up with WP students competing against each other for places at medical school rather than competing against the full pool of applicants. The availability and inclusion of these measures are a recent addition from the OfS and so, once fully bedded in, it would be useful for a future study to investigate whether use of IMD and TUNDRA and the development of ABCS provide a more holistic picture of WP or whether, as noted above, using multiple measures collectively may mask divergent effects of the individual measures and/or may be potentially being misused by HEIs to promote competition between WP groups rather than in comparison to non-WP groups.

Another new process that the OfS have introduced is a requirement to complete an Equality of Opportunity Risk Register (EORR) as part of Access and Participation Plan submissions from 2023 (OfS, 2023b). This mandates HEIs to consider and respond to twelve sector-wide risks that may affect a student's opportunity to access and succeed in HE as part of their APP. Again, it is too early to measure whether introducing the EORR will have a measurable impact on authentically supporting a diverse student body to access and succeed in HE and a future study may wish to investigate whether it is possible to measure the impact on medical education specifically.

It is beyond the scope of this thesis but it would be important for a future study to investigate potential correlations between academic performance, particularly in years 1 and 2 of the course, and students' sense of belonging/adaptation to medical school. A student is less likely to perform to the best of their abilities if they are not having a positive student experience more generally as evidenced in findings from Woolf et al, 2012; Vaughan et al, 2015 and Krstić et al, 2021 discussed earlier in this chapter. Student experience can be impacted by a wide range of issues and for WP students this may include not feeling represented within their curriculum or amongst their peers and teachers. By measuring perceived experiences against on-course performance, a future study may be able to identify whether there is any correlation between particular aspects of the student experience and assessment outcomes or whether the effects are greater for some assessments compared to others.

For those students that do drop out of medical school, a further study would be helpful to investigate why they dropped out and whether there are any predictors as to which students

go on to positive destinations, such as an alternative programme of study or pursuing a vocation that they feel more suited to.

Finally, it would be helpful to look at the profile of medical schools to see whether individual schools contribute more or less to WP. Brosnan (2010) investigated the differences between medical schools and found that they use differences in curricula, reputations and types/level of resources to compete with each other to attract different types of students. It would be useful to extend this further to look at how these 'competitive attributes' specifically impact widening access to, and participation in, medical school. This could be in terms of attracting more applicants from historically under-represented backgrounds, making more offers to this group, having lower dropout rates from this group and so on. It would be useful to understand what the differences are within groups as well as between them. For example, studies could compare Russell Group institutions against each other, rather than just against non-Russell Group institutions. This may help to identify whether there are particular medical schools within (or outside of) the Russell Group that are contributing more or less to WP than others rather than just focusing on the contributions made by the Russell Group versus the non-Russell Group medical schools.

5.5 Emerging issues to consider

Widening access is not a static field and the landscape in which it operates is constantly changing and evolving. There are a number of emerging issues that are out of the scope of this thesis but should be acknowledged as likely to have a future impact on this field of work. Some of the key issues that need to be considered are outlined below.

At the time of submission, the greatest challenge facing the world, let alone the HE sector, was the global Covid-19 coronavirus pandemic. It has had, and continues to have, a huge effect on the way we live, work, and learn. It has been well documented that the pandemic has led to increased deprivation and poverty as people have lost work and income and that there are significant, and growing, mental health repercussions for all age groups. (Francis-Devine, 2021; Whitehead, Taylor-Robinson and Barr, 2021; Bambra, 2021; Mental Health Foundation, 2020). We do not yet entirely know how this has affected and shaped young people and the longevity of any impact it has had on them, mentally, physically, and educationally.

What we do know is that it has had vast impact on how education has been, and continues to be, delivered across the entire student lifecycle, including where and how students access their learning, how students are assessed, and the support that they are able to access.

Early indications suggested that negative impacts of the pandemic on education were most greatly felt by students from the lowest socio-economic categories and that prior inequities were further exacerbated. (Van Lancker and Parolin, 2020; Hanushek and Woessmann, 2020) It is likely that effects will be felt for many years to come and we will not know the true impact on education, learning and opportunities for students from historically under-represented backgrounds for quite some time. This is not to say that the issues outlined in this thesis are no longer relevant but instead that they are likely to be further compounded as a result of the pandemic and the cost of living crisis that has followed. Students from historically under-represented backgrounds are the least likely to have a quiet study space, their own device or high-speed internet access to undertake online learning in optimal conditions which will affect their engagement and ability to perform to their potential (OfS, 2020b; Anders et al, 2021; Howard et al, 2021; Cullinane et al 2022) . They are also the most likely to be impacted by the financial implications of the current economic climate and therefore, in my professional experience, the least likely to attend in person teaching – whether that is due to travel costs or the need to work to financially support themselves.

The pandemic also resulted in a surge of interest in healthcare degrees, including medicine. Whilst this can be seen as a positive thing, it does also further increase the level of competition to secure a place on a medical degree programme in an already very competitive field, which is likely to further disadvantage students from historically under-represented backgrounds. Although eligible entrants to medical school increased for the September 2020 intake, and indications are that there was a positive effect of the eventual approach used to allocate A-Level grades on widening access, these were a very particular set of circumstances that are unlikely to be repeated. (Department for Education, 2020) It should not be assumed that this means that the pandemic has resulted in positive educational circumstances for students from historically under-represented backgrounds. There are concerns around how centre-assessed grades (Ofqual, 2021) were allocated and whether, as with historical patterns of predicted grades, these benefitted students from the independent sector the most. A report from the Sutton Trust further highlights that parents of A-Level students in the private sector were more likely to put pressure on teachers to submit higher grades to exam boards as part of the centre-assessed grades process. (Holt-White and Cullinane, 2021) As the assessment cycle has returned to ‘normal’ we are beginning to see the impacts of grade inflation over two years of admissions cycles directly affected by the pandemic.

There was an increase in deferred places (either through student choice or where medical schools were already at capacity), and increases in resits, appeals and reapplications, all of

which impacted the number of places available for future cohorts and potentially exacerbated challenges in widening access to medical education. (FE news, 2021).

There was also an impact on current medical students and, if they aren't already, medical schools should give a renewed focus to transition between years of study. Transition support shouldn't just focus on incoming year 1 students. Students across all years of a medical degree will have had a large majority of their post-16/post-18 studies disrupted by the pandemic itself and its aftereffects. All of these students will have missed out on traditional learning and socialisation which, as already discussed earlier in this chapter, may have an impact on their sense of belonging and thus their on-course performance. Medical schools will also want to pay closer attention to other potential factors impacting on-course success and whether drop-out rates are increasing or disproportionately higher in certain groups as a result of the changes made to teaching and assessment due to the pandemic and then the subsequent return to pre-pandemic forms of assessment.

Outside of the pandemic, there are also other issues that are likely to impact the widening access and/or medical education agenda.

The Office for Students had a change in key personnel following the departure of Michael Barber as OfS Chair (replaced by Conservative MP Lord Wharton) and Chris Millward as Director for Fair Access and Participation at OfS (replaced by John Blake) both in 2021 and the departure of Nicola Dandridge as Chief Executive of the OfS (replaced by Susan Lapworth) in 2022 (OfS, 2021b, 2021d, 2021f), As a result, the HE landscape is currently in a state of transition regarding Access and Participation Plans. At the time of writing, universities are in the process of adapting to new expectations that place greater emphasis on on-course student success. These changes include the implementation of frameworks such as the EORR, which was discussed earlier in this chapter.

As these modifications are still being integrated, it is premature to assess their impact. A future study would be valuable to evaluate the effectiveness of these changes once they have been fully implemented and embedded within institutional practices. This research could provide insights into how the shift in focus has affected student outcomes and institutional approaches to supporting underrepresented groups throughout their academic journey.

At the time of writing, a general election in the UK is imminent. This is likely to bring further change for the HE sector that may also impact the widening access and participation

agenda. It is impossible to predict what these changes may be and whether they will alleviate or further exacerbate the pressures faced by the sector.

We do not know, for example, whether a new government may now begin to implement the recommendations from the Augar review (2019). One of the recommendations of the review is a change to tuition fees, with maximum fees being suggested to drop to £7,500 per year. This comes at a time when HEIs are already struggling, having endured a decline of tuition fee income, in real terms, because the maximum fee has remained frozen at £9,250 per year for a decade. There is currently no indication that there would be alternative funding provided to universities to account for the loss of tuition fee income if this is implemented. This would be a concern for the financial health and stability of the HE sector as a whole, but particularly for high-cost courses such as medicine where student numbers are regulated by government. Some HEIs and courses have tried to subsidise this deficit by increasing the intake of overseas students, whose fee structure differs to that of UK students, however this option is not possible for medical schools as there is a tight cap on the proportion of overseas students that they are allowed to accept each year. Any reduction in tuition fees would likely have a major impact on widening access, as these activities are most likely to be the victims of any tuition fee income loss where there is no longer a mandatory requirement for spend in this area.

In relation to widening access to medicine specifically, medical schools will need to be mindful of the fact that many WP pre-entry programmes, developed to support applications to medicine by students from historically under-represented backgrounds, were not able to run or had to be delivered in an alternate format such as online events during the pandemic. (Bligh et al, 2021) Although online WP activities may allow a greater geographical reach than may have otherwise been possible, in most cases, the provision was severely restricted. University WP and outreach teams worked hard to adapt their provision and what is viable but, whilst this was happening, at least two cohorts of students are likely to have been adversely affected by lack of traditional access to these programmes. In a similar way, many students will not have been able to access planned work experience opportunities in the healthcare sector which would usually be a key part of their UCAS application and understanding of the profession. These issues arose outside of the timescales of this study however, it would be useful for a future study to investigate the impact this may have had on the widening access to medical education agenda.

These are all things that are likely to have an impact on widening access direction and progress, albeit to different extents, and medical schools will need to pay close attention in order to plan and adapt provision and support for WP opportunities.

5.6 Conclusions

This thesis has used a critical realism framework to conclude that although there are a number of challenges perceived by all potential applicants and applicants to medical school, there are many that appear to be more pronounced for students from historically under-represented backgrounds who are likely to receive less individual support and accurate guidance from their school or college and key influencers. It also reinforces findings that students from historically under-represented backgrounds who successfully attain at a place at medical school, are most likely to struggle with a sense of belonging that is exacerbated by a paucity of transitional and induction resource and an equal rather than equitable approach to on-course support.

The findings of this thesis contribute to a growing body of literature around the applicant and undergraduate student experience, investigating the challenges of widening access and participation in medical education from the perspective of applicants and students themselves. It also brings in the thoughts of teachers and careers advisors who are tasked with supporting applicants through the process, to contextualise these challenges; finding that there are a unique set of additional challenges in terms of resource and ability to provide support for applying to medicine, most keenly felt by schools in the state comprehensive sector. This thesis has also further evidenced concerns around metrics used to measure WP and identified how these account for different effect sizes at the different stages of the student lifecycle.

The gap that this thesis fills is in understanding the perceived challenges of medical school applicants and students in relation to their own (dis)advantage and how this influences their decision-making behaviour and experience of the application process and on-course performance. Using these findings alongside current literature in the field we are now able to recognise how understanding the influence and impact of perceived as well as very real challenges in students' pursuit of a medical education can enable the medical education sector, as a whole, to identify the ways in which students from historically under-represented backgrounds would like to be better supported by medical schools and their key influencers in order to successfully and authentically widen access to medical education.

This thesis has contributed a number of recommendations to support medical schools with this agenda.

References and Bibliography

Aimhigher West Midlands. (2021). [online] Available at: https://aimhigherwm.ac.uk/ [Accessed 22 Aug. 2021].

Alexander, K., Cleland, J. and Nicholson, S. (2019). Bridging the cultural divide? Exploring school pupils' perceptions of medicine. *Medical Education*, 53(6), pp.571–583.

Alexander, K, Cleland, JA, Nicholson, SL and Fahey Palma, T. (2018). *Perceptions, discourses and values: Exploring how key stakeholders construct, negotiate and enact widening access to medical school.* University of Aberdeen.

Alexander, K., Fahey Palma, T., Nicholson, S. and Cleland, J. (2017). "Why not you?" Discourses of widening access on UK medical school websites. *Medical Education*, 51(6), pp.598–611.

Alexander, K., Nicholson, S. and Cleland, J. (2020). 'It's going to be hard you know…' Teachers' perceived role in widening access to medicine. *Advances in Health Sciences Education*, 26(1), pp.277–296.

Alsubaie, MA. (2015). Hidden Curriculum as One of Current Issue of Curriculum. *Journal of education and practice*, 6(33), pp.125–128.

Anders, J., Macmillan, L., Sturgis, P. & Wyness, G. (2021). Inequalities in young peoples' educational experiences and wellbeing during the Covid-19 pandemic *(CEPEO Working Paper No. 21-08)*. Centre for Education Policy and Equalising Opportunities, UCL.

Archer, L., Moote, J., Francis, B., DeWitt, J. and Yeomans, L. (2016). Stratifying science: a Bourdieusian analysis of student views and experiences of school selective practices in relation to "Triple Science" at KS4 in England. *Research Papers in Education*, 32(3), pp.296–315.

Archer, M.S. (2003). *Structure, agency, and the internal conversation*. Cambridge, UK; New York: Cambridge University Press.

Archer, M.S., et al (2016). What is critical realism? *Perspectives: A newsletter of the ASA theory section*. [online] Available at: http://www.asatheory.org/current-newsletter-online/what-is-critical-realism.

Archer, M.S. (1995). *Realist social theory.* Cambridge: Cambridge University Press.

Archer, M.S., Bhaskar, R., Collier, A., Lawson, T. and Alan, N. eds., (1998). *Critical realism: essential readings*. London; New York: Routledge.

Augar, P. (2019). *Independent panel report to the Review of Post-18 Education and Funding*. [online] Department for Education. Available at: www.gov.uk/government/publications [Accessed 12 Jun. 2020].

Baker, S. and Edwards, R. (2012). *How many qualitative interviews is enough? Expert voices and early career reflections on sampling and cases in qualitative research*. [online] National Centre for Research Methods. Available at: https://eprints.ncrm.ac.uk/id/eprint/2273/ [Accessed 1 Nov. 2017].

Ball, R., Alexander, K. and Cleland, J. (2020). 'The biggest barrier was my own self': the role of social comparison in non-traditional students' journey to medicine. *Perspectives on Medical Education*, 9(3), pp.147–156.

Balmer, D.F., Devlin, M.J. and Richards, B.F. (2016). Understanding the relation between medical students' collective and individual trajectories: an application of habitus. *Perspectives on medical education*, 6(1), pp.36–43.

Bambra, C., Riordan, R., Ford, J. and Matthews, F. (2020). The COVID-19 pandemic and health inequalities. *Journal of Epidemiology and Community Health*, [online] 74(11), pp.964–968. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7298201/ [Accessed 1 Nov. 2021].

Barnhouse Walters, P. (2001). Social Inequality and Schooling. *Elsevier eBooks*, pp.14309–14313. Available at: https://doi.org/10.1016/b0-08-043076-7/02456-6.

Bassett, A.M., Brosnan, C., Southgate, E. and Lempp, H. (2018). Transitional journeys into, and through medical education for First-in-Family (FiF) students: a qualitative interview study. *BMC Medical Education*, 18(1).

Bhaskar, R. (2013). *A Realist Theory of Science*. London; New York: Routledge.

Bhattacherjee, A. (2012). *Scholar Commons Social Science Research: Principles, Methods, and Practices*. [online] Global Text Project. Available at: http://scholarcommons.usf.edu/oa_textbooks/3 [Accessed 28 Dec. 2019].

Biemer, P.P. and Lyberg, L.E. (2003). *Introduction to survey quality*. New York: Wiley & Sons.

Blair, T. (1997). *1997 Labour Party Manifesto*. [online] Labour Party. Available at: http://www.labour-party.org.uk/manifestos/1997/1997-labour-manifesto.shtml [Accessed 23 Apr. 2020].

Blenkinsop, S., McCrone, T., Wade, P. and Morris, M. (2006). *How Do Young People Make Choices at 14 and 16?* [online] National Foundation for Educational Research. Available at: https://dera.ioe.ac.uk/6449/1/RR773.pdf [Accessed 1 Nov. 2021].

Bligh, E.R., Courtney, E., Stirling, R., Rajananthanan, A. and Sheffield Neuroscience Society (2021). Impact of the COVID-19 Pandemic on UK Medical School Widening Access Schemes: Disruption, Support and a Virtual Student Led Initiative. *BMC Medical Education*, 21(1).

BMA (2015). *The Right Mix*. [online] British Medical Association. Available at: http://www.bma.org.uk/features/therightmix/ [Accessed 9 Oct. 2016].

BMA (2018). *Progress made on widening access to medical education*. [online] British Medical Association. Available at: https://www.bma.org.uk/news/2018/november/progress-made-on-widening-access-to-medical-education [Accessed 8 Aug. 2021].

BMA (2019). *About us*. [online] British Medical Association. Available at: https://www.bma.org.uk/about-us [Accessed 5 Oct. 2021].

Bogdan, R. and Biklen, S.K. (1992). *Qualitative research for education: an introduction to theory and methods*. 2nd ed. Boston: Allyn and Bacon.

Bourdieu, P. (1986). The Forms of Capital. In Richardson, J. *Handbook of Theory and Research for the Sociology of Education*. Greenwood.

Bourdieu, P. and Wacquant, L. (2013). Symbolic Capital and Social Classes. *Journal of Classical Sociology*, [online] 13(2), pp.292–302.

Bourgeois, N. (2010). The Critical Pragmatist as Scholar–Practitioner. *Scholar-Practitioner Quarterly*, 4(3), pp.233–244.

Brosnan, C. (2010). Making sense of differences between medical schools through Bourdieu's concept of 'field'. *Medical Education*, 44(7), pp.645–652.

Brown, C., Goss, C. and Sam, A.H. (2023). Is the awarding gap at UK medical schools influenced by ethnicity and medical school attended? A retrospective cohort study. *BMJ Open*, [online] 13(12).

Browne, J. (2010). *Securing a Sustainable future for higher education*. [online] www.independent.gov.uk. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/422565/bis-10-1208-securing-sustainable-higher-education-browne-report.pdf [Accessed 28 Dec. 2019].

Bryman, A. (2004). *Social research methods*. 2nd ed. Oxford: Oxford University Press.

Burgess, A.P., Horton, M.S. and Moores, E. (2021). Optimising the impact of a multi-intervention outreach programme on progression to higher education: recommendations for future practice and research. *Heliyon*, [online] 7(7), p.e07518. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8282973/ [Accessed 12 Nov. 2021].

CACI (2021). *Acorn - Understanding consumer segmentation, demographic data*. [online] Available at: https://acorn.caci.co.uk/what-is-acorn [Accessed 8 Aug. 2021].

Callendar C. (2009). Institutional Aid in England: Promoting Widening Participation or Perpetuating Inequalities, in J. Knight (Ed) *Financing Equity and Access in Higher Education*, Rotterdam: Sense Publishing.

Capper, J. (2022). Equality vs. Equity: The importance of knowing the difference. Available at: https://insight.rwabusiness.com/blog/posts/2022/october/equality-vs-equity-the-importance-of-knowing-the-difference [Accessed 9 Mar. 2024].

Cambridge Assessment (2021). *What is BMAT?* [online] Available at: https://www.admissionstesting.org/for-test-takers/bmat/ [Accessed 8 Aug. 2021].

Chester, J. and Bekhradnia, B. (2008). *Financial support in English universities: the case for a national bursary scheme*. [online] Higher Education Policy Institute. Available at: https://www.hepi.ac.uk/wp-content/uploads/2014/02/37NationalBursaryfull.doc [Accessed 3 Oct. 2021].

Clarke, P. (2017). Who you know: The importance of social capital in widening participation. In: *Report 98: Where next for widening participation and fair access?* HEPI.

Clegg, S., MacDonald, R., Smith, K., Bradley, S. and Glover, S. (2004). Using Research Evidence to Inform Policy and Practice - the Sheffield Hallam University Model. The HEA Third Mike Daniel Symposium for Institutional Research. Higher Education Academy.

Cleland, J., Dowell, J., McLachlan, J., Nicholson, S. and Patterson, F. (2012). *Identifying best practice in the selection of medical students (literature review and interview survey)*. General Medical Council.

Connor, H., Burton, R., Pearson, R., Pollard, E. and Regan, J. (1999). *Making the Right Choice: How Students Choose Universities and Colleges*. Brighton: Institute for Employment Studies.

Considine, G. and Zappalà, G. (2001). *Factors Influencing the Educational Performance of Students from Disadvantaged Backgrounds 1*. [online] pp.91–107. Available at: https://www.aspc.unsw.edu.au/sites/www.aspc.unsw.edu.au/files/uploads/files/009-NSPC01_Considine_Zappala.pdf [Accessed 1 Nov. 2021].

Considine, G. and Zappala, G. (2002). Factors influencing the educational performance of students from disadvantaged backgrounds. In: Eardley, T. and Bradbury, B. eds. *Competing visions: Refereed proceedings of the national social policy conference,* [online] pp. 91-107. Available at: https://www.aspc.unsw.edu.au/sites/www.aspc.unsw.edu.au/files/uploads/files/009-NSPC01_Considine_Zappala.pdf [Accessed 28/12/2019]

Corver, M. (2010). *Have bursaries influenced choices between universities?* [online] OFFA. Available at: http://www.offa.org.uk/wp-content/uploads/2010/09/Have-bursaries-influenced-choices-between-universities-.pdf [Accessed 1 Nov. 2021].

Cullinane, C., Anders, J., De Gennaro, A., Early, E., Holt-White, E., Montacute, R., Shao, X. and Yarde, J. (2022). COSMO: Covid social mobility and opportunities study. *Wave 1 Initial Findings – Briefing No. 1 Lockdown Learning*.

Curtis, S., Blundell, C., Platz, C. and Turner, L. (2014a). Successfully widening access to medicine. Part 1: recruitment and admissions. *Journal of the Royal Society of Medicine*, 107(9), pp.342–346.

Curtis, S., Blundell, C., Platz, C. and Turner, L. (2014b). Successfully widening access to medicine. Part 2: Curriculum design and student progression. *Journal of the Royal Society of Medicine*, [online] 107(10), pp.393–397.

Curtis, S. and Smith, D. (2020). A comparison of undergraduate outcomes for students from gateway courses and standard entry medicine courses. *BMC Medical Education*, 20(1).

Dalley, B., Podawiltz, A., Castro, R., Fallon, K., Kott, M., Rabek, J., Richardson, J., Thomson, W., Ferry, P., Mabry, B., Hermesmeyer, P. and Smith, Q. (2009). The Joint Admission Medical Program: A Statewide Approach to Expanding Medical Education and Career Opportunities for Disadvantaged Students. *Academic Medicine*, 84(10), pp.1373–1382.

Danermark, B., Ekström, M. and Karlsson, J.Ch. (2019). *Explaining Society: Critical Realism in the Social Sciences*. London; New York: Routledge.

Davies, J., Donnelly, M. and Sandoval-Hernandez, A. (2021). Geographies of elite higher education participation: An urban “escalator” effect. *British Educational Research Journal*, 47(4), pp.1079–1101.

Dearden, L. and Jin, W. (Michelle) (2014). *The rise and demise of the National Scholarship Programme: implications for university students*. [online] Institute for Fiscal Studies. Available at: https://www.ifs.org.uk/publications/7410 [Accessed 13 Aug. 2021].

Dearden, L., Hodge, L., Jin, W., Levine, A. and Williams, L. (2014). *Financial support for HE students since 2012*. [online] Institute for Fiscal Studies. Available at: https://www.ifs.org.uk/uploads/publications/bns/BN152.pdf [Accessed 13 Aug. 2021].

Dearing, R. (1997). *Dearing Report*. [online] Available at: http://www.educationengland.org.uk/documents/dearing1997/dearing1997.html [Accessed 23 Apr. 2020].

Decorte, T., Malm, A., Sznitman, S.R., Hakkarainen, P., Barratt, M.J., Potter, G.R., Werse, B., Kamphausen, G., Lenton, S. and Asmussen Frank, V. (2019). The challenges and benefits of analyzing feedback comments in surveys: Lessons from a cross-national online survey of small-scale cannabis growers. *Methodological Innovations*, 12(1).

Denscombe, M. (2014). *The Good Research Guide for small-scale Social Research Projects*. 5th ed. Berkshire: London Open University Press.

Department for Education (2015). *An introduction to curriculum and assessment*. [online] Education NI. Available at: https://www.education-ni.gov.uk/articles/introduction-curriculum-and-assessment [Accessed 12 Sep. 2021].

Department for Education (2020). *GCSE and A-Level students to receive centre assessment grades*. [online] Available at: https://www.gov.uk/government/news/gcse-and-a-level-students-to-receive-centre-assessment-grades [Accessed 15 Oct. 2021].

Department for Education (2021). *Interim Conclusion of the Review of Post- 18 Education and Funding*. [online] Department for Education. Available at: www.gov.uk/official-documents. [Accessed 12 Apr. 2021].

Department for Health and Social Care (2017). *1,500 extra medical undergraduate places confirmed*. [online] GOV.UK. Available at: https://www.gov.uk/government/news/1500-extra-medical-undergraduate-places-confirmed [Accessed 12 Oct. 2019].

Diamond, A., Vorley, T., Roberts, J. and Jones, S. (2012). *Behavioural Approaches to Understanding Student Choice*. [online] Higher Education Academy. Available at: https://www.heacademy.ac.uk/sites/default/files/resources/student_choice.pdf [Accessed 29 Dec. 2019].

Dolnicar, S., Grun, B., Leisch, F. and Rossiter, J. (2011). *Three good reasons NOT to use five and seven point Likert items Three good reasons NOT to use five and seven point Likert items*. University of Wollongong: Research Online.

Doyle, M. and Griffin, M. (2012). Raised aspirations and attainment? A review of the impact of Aimhigher (2004–2011) on widening participation in higher education in England. *London Review of Education*, 10(1), pp.75–88.

Education Scotland (2019). *What is Curriculum for Excellence?* [online] Gov.scot. Available at: https://education.gov.scot/scottish-education-system/policy-for-scottish-education/policy-drivers/cfe-(building-from-the-statement-appendix-incl-btc1-5)/What%20is%20Curriculum%20for%20Excellence? [Accessed 12 Sep. 2021].

Elmansouri, A., Curtis, S., Ceri Nursaw and Smith, D. (2023). How do the post-graduation outcomes of students from gateway courses compare to those from standard entry medicine courses at the same medical schools? *BMC Medical Education*, 23(1).

FE news (2021). *The cap on places for Medical and Dental students in 2022 will not be extended to accommodate students who deferred in 2021*. [online] FE News. Available at: https://www.fenews.co.uk/skills/extra-places-on-medical-and-dentistry-courses-to-support-nhs-workforce-of-the-future/ [Accessed 21 May 2024].

Foster, W. (1994). School leaders as transformative intellectuals: Toward a critical pragmatism. In: N.A. Prestine and P.W. Thurston, eds., *Advances in educational administration: Vol. 3. New directions in educational administration: Policy, preparation, and practice*. Greenwich, CT: JAI Press Inc., pp.29–51.

Francis-Devine, B. (2021). *Poverty in the UK: statistics*. House of Commons Library.

Frost, H.D. and Regehr, G. (2013). 'I am a Doctor': negotiating the discourses of standardization and diversity in professional identity construction. *Academic Medicine*, 88(10), pp.1570–1577.

Gartland, C. (2014). *STEM Strategies : student ambassadors and equality in higher education*. London: Institute Of Education Press.

Gibson Smith, K., Alexander, K. and Cleland, J. (2021). Opening up the black box of a Gateway to Medicine programme: a realist evaluation. *BMJ Open*, 11(7), p.e049993.

Gillard, D. (2018). *Education in England: a history*. [online] Available at: http://www.educationengland.org.uk/history/chapter17.html [Accessed 23 Apr. 2020].

Giroux, H.A. and Penna, A.N. (1979). Social Education in the Classroom: The Dynamics of the Hidden Curriculum. *Theory & Research in Social Education*, [online] 7(1), pp.21–42.

GMC (2018). *What we do and why*. [online] General Medical Council. Available at: https://www.gmc-uk.org/about/what-we-do-and-why [Accessed 5 Oct. 2021].

GMC (2021). *Education*. [online] General Medical Council. Available at: https://www.gmc-uk.org/education [Accessed 8 Aug. 2021].

Gofton, W. and Regehr, G. (2006). What We Don't Know We Are Teaching: Unveiling the Hidden Curriculum. *Clinical Orthopaedics and Related Research*, PAP, pp.20–27.

Gorard, S., Boliver, V., Siddiqui, N. and Banerjee, P. (2019). Which are the most suitable contextual indicators for use in widening participation to HE? *Research Papers in Education*, 34(1), pp.99–129.

Gorski, P.S. (2013). 'What is Critical Realism? And Why Should You Care?' *Contemporary Sociology: A Journal of Reviews*, 42(5), pp.658–670. https://doi.org/10.1177/0094306113499533.

Government Digital Service (2021). *School leaving age*. [online] GOV.UK. Available at: https://www.gov.uk/know-when-you-can-leave-school [Accessed 12 Oct. 2019].

Greenbank, P. (2006). The Evolution of Government Policy on Widening Participation. *Higher Education Quarterly*, 60(2), pp.141–166.

Greenhalgh, T., Seyan, K. and Boynton, P. (2004). “Not a university type”: focus group study of social class, ethnic, and sex differences in school pupils’ perceptions about medical school. *BMJ*, 328(7455), p.1541.

Hanushek, E. and Woessmann, L. (2020). *The Economic Impacts of Learning Losses*. [online] OECD. Available at: https://www.oecd.org/education/The-economic-impacts-of-coronavirus-covid-19-learning-losses.pdf [Accessed 1 Nov. 2021].

Harrison, D. (2019). *Medical School choices and selection outcomes in the UK: a retrospective study using administrative data* at ASME Annual Scientific Meeting, Glasgow.

Harrison, D., McManus, I., Rees, E.L. and Woolf, K. (2022). Institutional choice among medical applicants: a profile paper for The United Kingdom Medical Applicant Cohort Study (UKMACS) prospective longitudinal cohort study. *BMJ Open*, 12(9), p.e060135.

Harrison, N., Davies, S., Harris, R. and Waller, R. (2018). Access, participation and capabilities: theorising the contribution of university bursaries to students’ well-being, flourishing and success. *Cambridge Journal of Education*, 48(6), pp.677–695.

Harris, R. and Davies, S. (2016). *Bursaries are an important component of widening participation in Higher Education and their funding should be maintained*. Policy Bristol.

Hart, C.S. (2016). How Do Aspirations Matter?, *Journal of Human Development and Capabilities*, 17(3), pp.324-341.

HEE (2017). *Education outcomes framework*. [online] Health Education England. Available at: https://www.hee.nhs.uk/our-work/education-outcomes-framework [Accessed 5 Oct. 2021].

HEFCE (2006). *Widening Participation: A review*. [online] Higher Education Funding Council for England (HEFCE). Available at: http://webarchive.nationalarchives.gov.uk/20100202100434/http://hefce.ac.uk/widen/aimhigh/WPfinalreview.pdf [Accessed 12 Oct. 2016].

Hefny, A.F., Albawardi, A., Moien AB Khan, Fathi, M.A. and Mansour, N.A. (2024). Students’ perspectives on their early dropout of medical school. *Journal of education and health promotion*, 13(1).

HESA (2021a). *Non-continuation: UK Performance Indicators*. [online] Higher Education Statistics Agency. Available at: https://www.hesa.ac.uk/data-and-analysis/performance-indicators/non-continuation [Accessed 4 Sep. 2021].

HESA (2021b). *Widening participation: UK Performance Indicators 2019/20*. [online] Higher Education Statistics Agency. Available at: https://www.hesa.ac.uk/data-and-analysis/performance-indicators/widening-participation [Accessed 4 Sep. 2021].

Higher Education Act 2004. [online] Available at: https://www.legislation.gov.uk/ukpga/2004/8/contents [Accessed 28 Dec. 2019].

Higher Education and Research Act 2017. [online] Available at: https://www.legislation.gov.uk/ukpga/2017/29/contents/enacted [Accessed 28 Dec. 2019].

Hill, C.E., Knox, S., Thompson, B.J., Elizabeth Nutt Williams, Hess, S.A. and Ladany, N. (2005). Consensual qualitative research: An update. *Journal of Counseling Psychology*, 52(2), pp.196–205.

Holt-White, E. and Cullinane, C. (2021). *A-Levels and University Access 2021*. [online] *The Sutton Trust*. Available at: https://www.suttontrust.com/wp-content/uploads/2021/07/A-Level-and-University-Access-2021.pdf [Accessed 28 Oct. 2021].

Hooley, G.J. and Lynch, J.E. (1981). Modelling the Student University Choice Process Through the Use of Conjoint Measurement Techniques. *European Research*, 9(4), pp.158–170.

Howard, E., Khan, A. and Lockyer, C. (2021). *Learning during the pandemic: review of research from England*. [online] Ofqual. Available at: https://www.gov.uk/government/publications/learning-during-the-pandemic/learning-during-the-pandemic-review-of-research-from-england [Accessed 1 May 2024].

Hubble, S. and Bolton, P. (2018). *Briefing paper number 8151: Higher Education tuition fees in England.* [online] *House of Commons Library.* Available at: https://commonslibrary.parliament.uk/research-briefings/cbp-8151/ [Accessed 27 Aug. 2023].

Hyman, M. and Sierra, J. (2016). Open- versus close-ended survey questions. *NMSU Business Outlook*, 14(2).

Imperial College London (2020). *About MBBS Medicine*. [online] Available at: https://www.imperial.ac.uk/study/ug/courses/school-of-medicine/medicine/ [Accessed 12 Oct. 2021].

Imperial College London. (2021). *Pathways to Medicine*. [online] Available at: https://www.imperial.ac.uk/be-inspired/schools-outreach/secondary-schools/stem-programmes/pathways-to-medicine/ [Accessed 12 Nov. 2021].

Imperial College London Medical School (n.d.). *History*. [online] Available at: http://www.imperial.ac.uk/medicine/about-us/history/ [Accessed 1 Nov. 2021].

Imperial College London (n.d.). *A timeline of College developments*. [online] Available at: https://www.imperial.ac.uk/about/history/college-developments/ [Accessed 1 Nov. 2021].

Imperial College School of Medicine Students' Union (n.d.). *About us*. [online] ICSMSU. Available at: https://www.icsmsu.com/ [Accessed 2 May 2021].

Imperial College Students' Union (2020). *Mums & Dads 2020/21*. [online] Available at: https://www-d7.imperialcollegeunion.org/mums-dads-202021 [Accessed 2 May 2021].

Jenlink, P.M. (2001). Scholar–practitioner leadership: A critical analysis of preparation and practice. Annual Meeting of the American Educational Research Association. Seattle, Washington.

Jerrim, J. (2021). *Measuring Disadvantage*. [online] The Sutton Trust. Available at: https://www.suttontrust.com/our-research/measuring-disadvantage-higher-education-polar-fsm/ [Accessed 1 Nov. 2021].

Jones, R. and Thomas, L. (2005). The 2003 UK Government Higher Education White Paper: a critical assessment of its implications for the access and widening participation agenda. *Journal of Education Policy*, 20(5), pp.615–630.

Judkins, M., Golden, S., Ireland, E. and Morris, M. (2005). *Evaluation of Aimhigher: Excellence Challenge Implementing Aimhigher: Excellence Challenge The Experiences of Ten Partnerships*. [online] National Foundation for Educational Research. Available at: https://core.ac.uk/download/pdf/9063652.pdf [Accessed 22 Jan. 2020].

Kamali, A.W., Nicholson, S. and Wood, D.F. (2005). A model for widening access into medicine and dentistry: the SAMDA-BL project. *Medical Education*, 39(9), pp.918–925.

Kaye, N. (2020). Evaluating the role of bursaries in widening participation in higher education: a review of the literature and evidence. *Educational Review*, 73(6), pp.775–797.

Kemmis, S. (1991). Critical Education Research. *The Canadian Journal for the Study of Adult Education*, 5(Special Issue), pp.94–119.

Kettley, N. (2007). The past, present and future of widening participation research. *British Journal of Sociology of Education*, 28(3), pp.333–347.

Kirby, P. and Cullinane, C. (2017). *Research Brief Edition 17: Science Shortfall*. [online] The Sutton Trust. Available at: https://www.suttontrust.com/wp-content/uploads/2017/01/Science-shortfall_FINAL.pdf [Accessed 12 Sep. 2021].

Krstić, C., Krstić, L., Tulloch, A., Agius, S., Warren, A. and Doody, G.A. (2021). The experience of widening participation students in undergraduate medical education in the UK: A qualitative systematic review. *Medical Teacher*, 43(9), pp.1–10. Available at: https://doi.org/10.1080/0142159x.2021.1908976.

Lambe, P., Roberts, M., Gale, T. and Bristow, D. (2018). *Development of a UKMED multidimensional measure of widening participation status. Final Report*. [online] UKMED. Available at: https://www.ukmed.ac.uk/documents/reports/UKMEDP041_report.pdf [Accessed 4 Oct. 2021].

Lancker, W.V. and Parolin, Z. (2020). COVID-19, school closures, and child poverty: a social crisis in the making. *The Lancet Public Health*, [online] 5(5). Available at: https://www.thelancet.com/journals/lanpub/article/PIIS2468-2667(20)30084-0/fulltext [Accessed 1 Nov. 2021].

Lempp, H. and Seale, C. (2004). The hidden curriculum in undergraduate medical education: qualitative study of medical students' perceptions of teaching. *BMJ*, 329(7469), pp.770–773.

Levers, M.-J.D. (2013). Philosophical Paradigms, Grounded Theory, and Perspectives on Emergence. *SAGE Open*, [online] 3(4), pp.1–6. Available at: https://journals.sagepub.com/doi/full/10.1177/2158244013517243.

Local Government Association (2018). *Income Deprivation Affecting Children Index (IDACI) - score in England*. [online] Available at: https://lginform.local.gov.uk/reports/lgastandard?mod-metric=3910&mod-area=E92000001&mod-group=AllRegions_England&mod-type=namedComparisonGroup [Accessed 8 Aug. 2021].

Loefler, I. (2006). Let's be fair about equity and equality. *BMJ*, 332(7543), p.735.2.

Maher, B.M., Hynes, H., Sweeney, C., Khashan, A.S., O'Rourke, M., Doran, K., Harris, A. and Flynn, S.O. (2013). Medical School Attrition-Beyond the Statistics A Ten Year Retrospective Study. *BMC Medical Education*, 13(1). doi:https://doi.org/10.1186/1472-6920-13-13.

Martin, A.J., Beska, B.J., Wood, G., Wyatt, N., Codd, A., Vance, G. and Burford, B. (2018). Widening interest, widening participation: factors influencing school students' aspirations to study medicine. *BMC Medical Education*, [online] 18(1).

Mathers, J., Sitch, A., Marsh, J.L. and Parry, J. (2011). Widening access to medical education for under-represented socioeconomic groups: population based cross sectional analysis of UK data, 2002-6. *BMJ*, [online] 342.

McAvoy, M.L. (2021). *The future of healthcare work experience Discovery Report*. [online] Health Education England. Available at: https://www.hee.nhs.uk/our-work/work-experience-pre-employment-activity [Accessed 5 Oct. 2021].

McCaig, C. and Adnett, N. (2009). English Universities, Additional Fee Income and Access Agreements: their impact on Widening Participation and Fair Access, *British Journal of Educational Studies*, 57(1), pp.18-36.

McCaig, C. and Bowers-Brown, T. (2007). Aimhigher: achieving social justice? In: *British Educational Research Association Annual Conference*, Institute of Education, University of London, September 5-8 2007.

McHarg, J., Mattick, K. and Knight, L.V. (2007). Why people apply to medical school: implications for widening participation activities. *Medical Education*, 41(8), pp.815–821.

McKay, J. and Marshall, P. (2001). The dual imperatives of action research. *Information Technology & People*, 14(1), pp.46–59.

Medical Schools Council (2010). *Guide to widening access schemes in medical schools*. BMA.

Medical Schools Council (2014). *Selecting for Excellence Final Report*. [online] MSC. Available at: https://www.medschools.ac.uk/our-work/selection/selecting-for-excellence [Accessed 21 Sep. 2018].

Medical Schools Council (2018a). *About us*. [online] Available at: https://www.medschools.ac.uk/about-us [Accessed 5 Oct. 2021].

Medical Schools Council (2018b). *Studying medicine*. [online] Available at: https://www.medschools.ac.uk/studying-medicine [Accessed 5 Oct. 2021].

Medical Schools Council (2024). *Medical school entry requirements for 2024 start*. [online] MSC. Available at: https://www.medschools.ac.uk/studying-medicine/how-to-apply-to-

medical-school-in-the-uk/entry-requirements?type=standard-entry-medicine [Accessed 27 June 2024].

Medify (2021). *Get into Medical School*. [online] Available at: https://www.medify.co.uk/ [Accessed 8 Aug. 2021].

Mental Health Foundation (2020). *The COVID-19 pandemic, financial inequality and mental health*. [online] Available at: https://www.mentalhealth.org.uk/our-work/research/coronavirus-mental-health-pandemic/covid-19-inequality-briefing [Accessed 1 Nov. 2021].

Meyer, S.B. and Lunnay, B. (2013). The Application of Abductive and Retroductive Inference for the Design and Analysis of Theory-Driven Sociological Research. *Sociological Research Online*, 18(1), pp.86–96. Available at: https://doi.org/10.5153/sro.2819.

Midtgarden, T. (2012). Critical Pragmatism: Dewey's social philosophy revisited. *European Journal of Social Theory*, 15(4), pp.505–521.

Milburn, A. (2012). *Fair Access to Professional Careers: A progress report by the Independent Reviewer on Social Mobility and Child Poverty*. Cabinet Office.

Ministry of Housing, Communities and Local Government (2019). *The English Indices of Deprivation: FAQs*. [online] UK Government. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/853811/IoD2019_FAQ_v4.pdf [Accessed 8 Aug. 2021].

Montacute, R. (2018). *Potential for Success: Fulfilling the promise of highly able students in secondary schools*. The Sutton Trust.

Montero-Marin, J., Hinze, V., Mansfield, K., Slaghekke, Y., Blakemore, S.-J., Byford, S., Dalgleish, T., Greenberg, M.T., Viner, R.M., Ukoumunne, O.C., Ford, T., Kuyken, W. and MYRIAD Team (2023). Young People's Mental Health Changes, Risk, and Resilience During the COVID-19 Pandemic. *JAMA Network Open*, [online] 6(9).

Murray, J. (2012). *Student choice: what informs it most?* [online] The Guardian. Available at: https://www.theguardian.com/higher-education-network/blog/2012/dec/11/student-choice-higher-education [Accessed 8 Dec. 2018].

Nguyen, M., Chaudhry, S.I., Desai, M.M., Chen, C., Mason, H.R.C., McDade, W.A., Fancher, T.L. and Boatright, D. (2022). Association of Sociodemographic Characteristics With US Medical Student Attrition. *JAMA Internal Medicine*, [online] 182(9), pp.917–924.

Nicholson, S., Alexander, K., Coyle, M. and Cleland, J. (2022). Widening access to medicine: using mid-range theory to extend knowledge and understanding. In Cleland and Durning (eds), *Researching Medical Education*, 20(4), pp.41–51.

Nicholson, S. and Cleland, J.A. (2016). 'It's making contacts': notions of social capital and implications for widening access to medical education. *Advances in Health Sciences Education*, 22(2), pp.477–490.

Nursaw, C. (2014). *A Journey to Medicine Outreach Guidance*. [online] Medical Schools Council. Available at: https://www.medschools.ac.uk/media/1205/msc-a-journey-to-medicine-outreach-guidance.pdf [Accessed 12 May 2021].

O'Cathain, A. and Thomas, K.J. (2004). "Any other comments?" Open questions on questionnaires – a bane or a bonus to research?. *BMC Medical Research Methodology*, 25(4), pp.1–7.

O'Shea, S., Lysaght, P., Roberts, J. and Harwood, V. (2015). Shifting the blame in higher education – social inclusion and deficit discourses. *Higher Education Research & Development*, 35(2), pp.322–336.

Office for Fair Access (2012). *How to complete your monitoring return: Access Agreement and WPSAs*. Available at: https://webarchive.nationalarchives.gov.uk/20180511111617/https://www.offa.org.uk/universities-and-colleges/guidance/annual-guidance/ [Accessed 28 Dec. 2019].

Office for Students. (2020). [online] Available at: https://www.ofsuniconnect.org/ [Accessed 22 Aug. 2021].

Ofqual (2015). *Get the facts: GCSE reform*. [online] GOV.UK. Available at: https://www.gov.uk/government/publications/get-the-facts-gcse-and-a-level-reform/get-the-facts-gcse-reform [Accessed 12 Sep. 2021].

Ofqual (2021). *Information for heads of centre, heads of department and teachers on the submission of teacher assessed grades: summer 2021*. [online] GOV.UK. Available at: https://www.gov.uk/government/publications/submission-of-teacher-assessed-grades-summer-2021-info-for-teachers/information-for-heads-of-centre-heads-of-department-and-teachers-on-the-submission-of-teacher-assessed-grades-summer-2021-html [Accessed 2 May 2021].

OfS (2018a). *A new approach to regulating access and participation in English higher education - consultation outcomes*. Office for Students.

OfS (2018b). *Our approach to access and participation*. [online] Available at: https://www.officeforstudents.org.uk/advice-and-guidance/promoting-equal-opportunities/our-new-approach-to-access-and-participation/ [Accessed 28 Dec. 2019].

OfS (2019). *About POLAR and Adult HE*. [online] Office for Students. Available at: https://www.officeforstudents.org.uk/data-and-analysis/young-participation-by-area/about-polar-and-adult-he/ [Accessed 8 Aug. 2021].

OfS (2020a). *About the TUNDRA area-based measures data*. [online] Office for Students. Available at: https://www.officeforstudents.org.uk/data-and-analysis/young-participation-by-area/about-tundra/ [Accessed 8 Aug. 2021].

OfS (2020b). *'Digital poverty' risks leaving students behind*. [online] Office for Students. Available at: https://www.officeforstudents.org.uk/news-blog-and-events/press-and-media/digital-poverty-risks-leaving-students-behind/ [Accessed 12 May 2024].

OfS (2021a). *Access and Participation plans: when to submit plans*. [online] Office for Students. Available at: https://www.officeforstudents.org.uk/advice-and-guidance/promoting-equal-opportunities/access-and-participation-plans/when-to-submit-plans/ [Accessed 5 Oct. 2021].

OfS (2021b). *Chris Millward to end fair access role in December*. [online] Office for Students. Available at: https://www.officeforstudents.org.uk/news-blog-and-events/press-and-media/chris-millward-to-end-fair-access-role-in-december/#:~:text=Chris%20Millward [Accessed 1 Nov. 2021].

OfS (2021c). *Young participation by area.* [online] Office for Students. Available at: https://www.officeforstudents.org.uk/data-and-analysis/young-participation-by-area/ [Accessed 3 July. 2023]

OfS (2021d). *Lord Wharton appointed as new chair of Office for Students - Office for Students*. [online] Office for Students. Available at: https://www.officeforstudents.org.uk/news-blog-and-events/press-and-media/lord-wharton-appointed-as-new-chair-of-office-for-students/ [Accessed 1 Nov. 2021].

OfS (2021e). *Uni Connect*. [online] Office for Students. Available at: https://www.officeforstudents.org.uk/advice-and-guidance/promoting-equal-opportunities/uni-connect/ [Accessed 8 Aug. 2021].

OfS (2021f). *Nicola Dandridge to leave OfS in April 2022*. [online] Office for Students. Available at: https://www.officeforstudents.org.uk/news-blog-and-events/press-and-media/nicola-dandridge-to-leave-ofs-in-april-2022/ [Accessed 12 May 2024]

OfS (2022a). *Associations between characteristics of students.* [online] Office for Students. Available at: https://www.officeforstudents.org.uk/data-and-analysis/associations-between-characteristics-of-students/about-the-abcs-data/ [Accessed 21 April 2024]

OfS (2022b). *Schools and school partnerships.* [online] Office for Students. Available at: https://www.officeforstudents.org.uk/advice-and-guidance/promoting-equal-opportunities/schools-and-school-partnerships/ [Accessed 21 April 2024].

OfS (2023a). *Our approach to equality of opportunity.* [online] Office for Students. Available at: https://www.officeforstudents.org.uk/advice-and-guidance/promoting-equal-opportunities/our-approach-to-equality-of-opportunity [Accessed 3 July 2023].

OfS (2023b). *Equality of opportunity risk register.* [online] Office for Students. Available at: https://www.officeforstudents.org.uk/advice-and-guidance/promoting-equal-opportunities/equality-of-opportunity-risk-register [Accessed 3 July 2023].

ONS (2018). *Being 18 in 2018*. [online] Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/articles/being18in2018/2018-09-13 [Accessed Apr. 12AD].

Osborne, G. (2013). *AUTUMN STATEMENT 2013*. [online] HM Treasury. Available at: https://www.gov.uk/government/publications/autumn-statement-2013-documents [Accessed 28 Dec. 2019].

O'Sullivan, K., Bird, N., Robson, J. and Winters, N. (2019). Academic identity, confidence and belonging: The role of contextualised admissions and foundation years in higher education. *British Educational Research Journal*, 45(3), pp.554–575.

Passy, R. (2012). Widening Participation, Aimhigher and the Coalition Government: Narratives of Freedom and Efficiency. *Power and Education*, 4(1), pp.83–95.

Paton, G. (2010). University admissions: Labour's student drive that backfired. *www.telegraph.co.uk*. [online] 9 Feb. Available at:

https://www.telegraph.co.uk/education/educationnews/7191924/University-admissions-Labours-student-drive-that-backfired.html [Accessed 12 May 2018].

Pennell, H. and West, A. (2005). The Impact of Increased Fees on Participation in Higher Education in England. *Higher Education Quarterly*, 59(2), pp.127–137.

Petrie, K. and Keohane, N. (2017). *On course for success? Student retention at university*. [online] Social Market Foundation. Available at: https://www.smf.co.uk/publications/course-success-student-retention-university/ [Accessed 8 Aug. 2021].

Pope, C. and Mays, N. (1995). Reaching the parts other methods cannot reach: an introduction to qualitative methods in health and health services research. *BMJ*, 311, pp.42–45.

QS (2024). *QS World University Rankings 2024*. [online] Top Universities. Available at: https://www.topuniversities.com/world-university-rankings [Accessed 11 June 2024].

Ravulapalli, K.C., Arroyave Caicedo, N.M., Zahra, D. and Mirza, M. (2024). Quantitative Analysis of Challenges Encountered by UK Widening Participation Medical Students in Comparison With Their Non-Widening Participation Peers. *Journal of Medical Education and Curricular Development*, [online] 11(1-8), p.23821205241249012.

Razack, S., Hodges, B., Steinert, Y. and Maguire, M. (2014). Seeking inclusion in an exclusive process: discourses of medical school student selection. *Medical Education*, 49(1), pp.36–47.

Rees, E. (2019). *Medical school choice among applicants from different social backgrounds: A national qualitative interview study in the United Kingdom at* ASME Annual Scientific Meeting, Glasgow.

Rich, A., Viney, R., Milou Silkens, Griffin, A. and Asta Medisauskaite (2023). UK medical students' mental health during the COVID-19 pandemic: a qualitative interview study. *BMJ Open*, 13(4).

Sartania, N., Alldridge, L. and Ray, C. (2021). Barriers to access, transition and progression of Widening Participation students in UK Medical Schools: The students' perspective. *MedEdPublish*, 10(1).

Sheeran, Y., Brown, B.J. and Baker, S. (2007). Conflicting philosophies of inclusion: the contestation of knowledge in widening participation. *London Review of Education*, 5(3), pp.249–263.

Sianou-Kyrgiou, E. and Tsiplakides, I. (2011). Similar performance, but different choices: social class and higher education choice in Greece. *Studies in Higher Education*, 36(1), pp.89–102.

Slack, K. (2003). Whose aspirations are they anyway?, *International Journal of Inclusive Education*, 7(4), pp.325-335.

Social Mobility Foundation (2021). *Aspiring Professionals Programme*. [online] Available at: http://www.socialmobility.org.uk/programmes/ [Accessed 1 Nov. 2021].

Spohrer, K. (2015). Opening Doors or Narrowing Opportunities? The Coalition's Approach to Widening Participation, Social Mobility and Social Justice. In: M. Finn, ed., *The Gove Legacy: Education in Britain after the Coalition*. London: Palgrave Pivot.

Stark, J.L. (2014). The Potential of Deweyan-Inspired Action Research. *Education and Culture*, 30(2), pp.87–101.

Steven, K., Dowell, J., Jackson, C. and Guthrie, B. (2016). Fair access to medicine? Retrospective analysis of UK medical schools application data 2009-2012 using three measures of socioeconomic status. *BMC Medical Education*, 16(1), pp.11–21.

Stevenson, J., Clegg, S. and Lefever, R. (2010). The discourse of widening participation and its critics: an institutional case study. *London Review of Education*, 8(2), pp.105–115.

Teaching and Higher Education Act 1998. [online] Available at: https://www.legislation.gov.uk/ukpga/1998/30/contents [Accessed 28 Dec. 2019].

The British Medical Association is the trade union and professional body for doctors in the UK. (n.d.). *BMA news and opinion*. [online] Available at: https://www.bma.org.uk/news/2018/november/progress-made-on-widening-access-to-medical-education [Accessed 12 Nov. 2021].

The Medic Portal (2015). *Get Into Medicine With The Medic Portal*. [online] Available at: https://www.themedicportal.com/ [Accessed 8 Aug. 2021].

The Russell Group (n.d.). *About us*. [online] Available at: https://russellgroup.ac.uk/ [Accessed 1 Nov. 2021].

The Student Room (2021). *Medicine*. [online] Available at: https://www.thestudentroom.co.uk/forumdisplay.php?f=195 [Accessed 8 Aug. 2021].

The Sutton Trust (2021). *Explore the medical profession with Pathways to Medicine*. [online] Available at: https://www.suttontrust.com/our-programmes/pathways-to-medicine/ [Accessed 1 Nov. 2021].

UCAS (2016). *Through the lens of students: how perceptions of higher education influence applicants' choices*. [online] UCAS. Available at: https://www.ucas.com/sites/default/files/through-the-lens-of-students.pdf [Accessed 15 Oct. 2021].

UCAS (2017). *Application rates data explorer*. [online] UCAS. Available at: https://www.ucas.com/corporate/data-and-analysis/ucas-undergraduate-releases/application-rates-data-explorer [Accessed 22 Nov. 2019].

UCAS (2018). *MEM - summary report*. [online] Available at: https://www.ucas.com/files/mem-summary-report [Accessed 28 Oct. 2021].

UCAS (2019). *January Deadline Analysis Report*. [online] UCAS. Available at: https://www.ucas.com/file/214311/download?token=IWBoM4PE [Accessed 29 Jan. 2020].

UK Government (2021). *Get undergraduate student finance: step by step guide*. [online] Available at: https://www.gov.uk/student-finance/continuing-fulltime-students [Accessed 8 Aug. 2021].

UKMED (2021). *About UKMED*. [online] Available at: https://www.ukmed.ac.uk/ [Accessed 8 Aug. 2021].

UK Medical Applicant Cohort Study. (n.d.). *UK Medical Applicant Cohort Study*. [online] Available at: https://ukmacs.wordpress.com [Accessed 30 May 2023].

UUK (2015). *Student Funding Panel: An analysis of the design, impact and options for reform of the student fees and loans system in England*. [online] Universities UK. Available at: https://universitiesukac.uk/policy-and-analysis/reports/Pages/student-funding-panel-reform-of-student-fees-loans-system-in-england.aspx [Accessed 13 Jan. 2021].

Vaughan, S., Sanders, T., Crossley, N., O'Neill, P. and Wass, V. (2014). Bridging the gap: the roles of social capital and ethnicity in medical student achievement. *Medical Education*, 49(1), pp.114–123. Available at: https://doi.org/10.1111/medu.12597.

Welsh Government (2008). *Curriculum and assessment*. [online] GOV.WALES. Available at: https://gov.wales/curriculum-and-assessment [Accessed 12 Sep. 2021].

Whitehead, M., Taylor-Robinson, D. and Barr, B. (2021). Poverty, health, and covid-19. *BMJ*, [online] 372. Available at: https://www.bmj.com/content/372/bmj.n376.

Wilkinson, T.J. (2016). Stereotypes and the hidden curriculum of students. *Medical Education*, 50(8), pp.802–804.

Woolf, K. (2019). *Medical school choice: The United Kingdom Medical Applicant Cohort Study at* Skill Formation in Context, Berlin.

Woolf, K., Potts, H.W.W., Patel, S. and McManus, I.C. (2012). The hidden medical school: A longitudinal study of how social networks form, and how they relate to academic performance. *Medical Teacher*, 34(7), pp.577–586.

Wright, S. (2014). Medical school personal statements: a measure of motivation or proxy for cultural privilege? *Advances in Health Sciences Education*, [online] 20(3), pp.627–643.

www.aston.ac.uk. (n.d.). *Pathway to Healthcare | Aston University*. [online] Available at: https://www.aston.ac.uk/hls/aston-medical-school/widening-participation/pathway-to-healthcare [Accessed 12 Nov. 2021].

www.gov.uk. (n.d.). *Repaying your student loan.* [online] Available at: https://www.gov.uk/repaying-your-student-loan/what-you-pay?step-by-step-nav=18045f76-ac04-41b7-b147-5687d8fbb64a [Accessed 27 Aug. 2023].

www.hesa.ac.uk. (n.d.). *Widening participation: UK Performance Indicators 2019/20 | HESA*. [online] Available at: https://www.hesa.ac.uk/data-and-analysis/performance-indicators/widening-participation [Accessed 12 Nov. 2021].

Appendices

Appendix A

Item A1: Recruitment advert for one-to-one interviews

Participants Required

Are you a current Undergraduate Medical Student at Imperial College? Would you be willing to give up 45 minutes of your time to support some research into accessing medical education in the UK?

We are interested in understanding the challenges faced by medical students and would like to interview you about your experiences in applying for a UK Undergraduate degree and as a current student at the School of Medicine at Imperial College.

All interviews will be confidential and any information used will be anonymised.
Participants will be invited to enter into a prize draw for a £50 Amazon voucher.
If you are available to participate in this research please contact Amandip Bisel, xxx@imperial.ac.uk.

Interviews are scheduled to take approximately 45 minutes and can be scheduled to take place at a time and venue of your convenience between **xxx** and **xxx**.

Item A2: Participant information sheet for one-to-one interviews

PROJECT TITLE
Identifying the barriers to entry and completion in medical education

INVITATION
You are being asked to take part in a research study on the experiences of medical students in applying to and studying at a UK Medical School. The purpose of the study is to identify the challenges that UK Medical School students have faced when applying to, attaining a place at and during their studies.

My name is Amandip Bisel and I am a PhD student at Imperial College looking at access to medical education in the UK. My contact email address is: xxx@imperial.ac.uk.

The purpose of the interview is to look at whether medical students have experienced any similar challenges and/or opportunities when applying to, attaining a place at and commencing their studies at the School of Medicine, Imperial College.

This research is being supervised by Dr Kevin Murphy (xxx@imperial.ac.uk), Professor Sue Smith (xxx@imperial.ac.uk) and Dr Annalisa Alexander (xxx@imperial.ac.uk) and has been approved by the Medical Education Ethics Committee at Imperial College.

WHAT WILL HAPPEN
In this study, you will be asked to participate in a one-to-one interview where you will be asked a series of questions relating to your experience of applying to UK Medical Schools and also your experiences as a current student at the School of Medicine at Imperial College. The interview can be arranged to take place at your convenience with regards to time and location. The interview will be recorded and transcribed at a later date. All interview responses will be kept anonymous and you will not be individually identified as part of the study.

TIME COMMITMENT
The interview is expected to last no more than 45 minutes.

PARTICIPANTS' RIGHTS
You may decide to stop being a part of the research study at any time without explanation.

You have the right to ask that any data you have supplied to that point be withdrawn/destroyed.

You have the right to omit or refuse to answer or respond to any question that is asked of you.

You have the right to have your questions about the procedures answered (unless answering these questions would interfere with the study's outcome). If you have any questions as a result of reading this information sheet, you should ask the researcher before the study begins.

BENEFITS AND RISKS

There are minimal identified benefits or risks for you in this study. Your decision to participate or not participate in this study will not impact on your status within the School of Medicine at Imperial College.

COST, REIMBURSEMENT AND COMPENSATION

Your participation in this study is voluntary. With agreement, participants will be entered into a prize draw for a £50 Amazon voucher.

CONFIDENTIALITY/ANONYMITY

The data we collect do not contain any personal information about you except your CID number. No one will link the data you provide to the identifying information you supplied (e.g. name, home address, email).

The data will be used as part of a wider study looking at patterns in the challenges faced in UK Medical School admissions and study. Individual participants will not be identified in any data presented as part of publications and/or presentations.

FOR FURTHER INFORMATION

Dr Kevin Murphy will be glad to answer your questions about this study at any time. You may contact him at xxx@imperial.ac.uk.

Item A3: Participant consent form for one-to-one interviews

Imperial College London

School of Medicine
Medical Education Ethics Committee

PROJECT TITLE Identifying the barriers to entry and completion in medical education

Name of Investigator: Amandip Bisel

Participant Identification Number: (office use only)

If you agree to participate, please complete this consent form and return to Amandip Bisel, xxx@imperial.ac.uk.

	YES	NO
I have read and understood the participant information sheet about the project. The risks and benefits have been discussed and all my questions have been satisfactorily answered.	☐	☐
I agree to be interviewed as outlined on the information sheet.	☐	☐
I agree to my interview being video/audio recorded.	☐	☐
I understand that if any of my words are transcribed and used in reports or presentations they will not be attributed to me.	☐	☐
I understand that my participation is voluntary and that I can withdraw from the project at any time without giving any reason, and that if I choose to do this, any data I have contributed will not be used.	☐	☐
I understand that I can contact Amandip Bisel at any time.	☐	☐
I understand that the results of the study will be shared with staff at the School of Medicine at Imperial College and also may be published.	☐	☐
I understand that no data shared or published will be attributed to me personally and I will not be individually identified as part of the study.	☐	☐
I understand that participation, non-participation or withdrawal will have no impact on my educational experience at Imperial College	☐	☐

_____	_____	_____
Name of Participant	Date	Signature
_____		
Participant Email Address		
_____	_____	_____
Name of Person taking consent (if different from investigator)	Date	Signature
_____	_____	_____
Investigator	Date	Signature

Item A4: One-to-one interview questions template

Question 1: How did you find out what the entry requirements for medicine were and at what stage in your education were you?

Question 2: Part 1: Was there any further information you wish you had access to when applying to study medicine? **Part 2:** Would it have been advantageous to have had any information at an earlier stage than during your sixth form studies? **Part 3:** When would you have liked to have access to this information?

Question 3: What support did you receive with your UCAS application and from whom? ***If not mentioned also ask:*** did you practice entry examinations (e.g. BMAT, UKCAT) and being interviewed?

Question 4: How did you consider which Medical Schools to apply to?

Question 5: How did you find the experience of applying to medicine? Were there any challenges that you found particularly difficult? ***If not answered ask:*** what support do you think might have lessened these challenges?

Question 6: Did you have any role models when applying for medicine? If so, do you think this helped with your application? If not, do you think this hindered your application?

Question 7: What were your experiences of starting at Imperial's Medical School? Did Imperial support you as much as you expected in your transition to University?

Question 8: You are in your …..year of your medical education. What have been the main challenges you have faced in each year of your study and how were you supported by the School of Medicine in addressing these challenges?

Question 9: In your opinion, do you feel that you and your peers have had access to the same opportunities throughout your education (including prior to HE) to make the most of your time at Medical School?

Question 10: On a scale of 1-10 please rate your experiences of the following:

- With 1 being very easy and 10 being very difficult how would you rate the difficulty of applying to UK medical schools?
- With 1 being very easy to adjust and 10 being very difficult to adjust how would you rate adjusting to the difference between academic study at sixth form/college and at University?
- With 1 being no support at all and 10 being more support than needed how would you rate the support provided by the School of Medicine with your academic studies?

Question 11: Finally, are there any other comments you would like to make?

Item A5: School recruitment advert for focus groups

Dear xxx,

I am a PhD student at Imperial College London looking at the challenges faced in accessing medical education (compared to other professions). Your school have been suggested as one that might be interested and able to help with my project.

I am now in a position to take forward the element of my research which involves engaging with current Sixth Form students about their perceptions. I have put together some details for you to look at and hope that, after reading the following, you will be able to assist with our research.

I would be extremely grateful if you would allow me to come into your school and talk to a group of 6-10 Year 12 students and 6-10 Year 13 students about their experiences in deciding upon and preparing for their Higher Education choices. From my experience the students usually find these sessions enjoyable and useful.

Group participants would need to be made up of the following:

- Mix of females and males (if your sixth form is mixed);
- Intending to go on to Higher Education within 2 years of completing their Post-16 studies;
- Studying subjects required for a medical degree (i.e. Biology and Chemistry);
- Expecting to obtain at least ABB in their A-Levels (or equivalent);
- A mixture of students intending to pursue a medical degree and not intending to pursue a medical degree (or not sure yet of what they want to do)
- A mixture of students who may or may not have participated in extra-curricular or outreach activities delivered by Universities to support their decision-making.

We would like to run 2 separate sessions - one with Year 12 students and one with Year 13 students. Each group would last approximately 1 hour and I can be flexible on when/what time these would take place, though ideally they would take place on the same day.

Ideally I would want to conduct the discussion group before the end of May. All I would require is a quiet room where the session can take place and students who are available and willing to participate.

If you would like any further information, please do not hesitate to get in touch. If you would like me to arrange a phone call with you to discuss details further I would be happy to do so.

I look forward to hearing from you.

Item A6: Participant information sheet for focus groups

PROJECT TITLE

Identifying the barriers to entry and completion in medical education

INVITATION

You are being asked to take part in a research study on the experiences of sixth form students in researching and applying to Higher Education including choosing whether to go to University, what to study and the UCAS application/interview process (as applicable). This may or may not include choosing to apply to UK Medical Schools. The purpose of the study is to identify the challenges that students have faced throughout this process.

My name is Amandip Bisel and I am a PhD student at Imperial College looking at access to medical education in the UK. My contact email address is: xxx@imperial.ac.uk.

This research is being supervised by Dr Kevin Murphy (xxx@imperial.ac.uk), Professor Sue Smith (xxx@imperial.ac.uk) and Dr Annalisa Alexander (xxx@imperial.ac.uk) and has been approved by the Medical Education Ethics Committee at Imperial College.

WHAT WILL HAPPEN

In this study, you will be asked to participate in a focus group with your peers where you will be asked a series of questions relating to the UCAS application process. The session will be recorded and transcribed at a later date. All responses will be kept anonymous and you will not be individually identified as part of the study.

TIME COMMITMENT

The session is expected to last no more than 60 minutes.

PARTICIPANTS' RIGHTS

Your participation in this study is voluntary. You may decide to stop being a part of the research study at any time without explanation.

You have the right to ask that any data you have supplied to that point be withdrawn/destroyed.

You have the right to omit or refuse to answer or respond to any question that is asked of you.

You have the right to have your questions about the procedures answered (unless answering these questions would interfere with the study's outcome). If you have any questions as a result of reading this information sheet, you should ask the researcher before the study begins.

BENEFITS AND RISKS

There are minimal identified benefits or risks for you in this study. Your decision to participate or not participate in this study will not impact on any future engagement with Imperial College London.

CONFIDENTIALITY/ANONYMITY

The data we collect do not contain any personal information about you. No one will link the data you provided to the identifying information you supplied (e.g. name, email address).

The data will be used as part of a wider study looking at patterns in the challenges faced in UK Medical School admissions and study. Individual participants will not be identified in any data presented as part of publications and/or presentations.

FOR FURTHER INFORMATION

Dr Kevin Murphy will be glad to answer your questions about this study at any time. You may contact him at xxx@imperial.ac.uk.

Item A7: Participant consent form for focus groups

Imperial College London

School of Medicine
Medical Education Ethics Committee

PROJECT TITLE Identifying the barriers to entry and completion in medical education

Name of Investigator: Amandip Bisel

Participant Identification Number: (office use only)

If you agree to participate, please complete this consent form and return to Amandip Bisel, xxx@imperial.ac.uk.

	YES	NO
I have read and understood the participant information sheet about the project. The risks and benefits have been discussed and all my questions have been satisfactorily answered.	☐	☐
I agree to participate in this focus group as outlined on the information sheet.	☐	☐
I agree to my participation in this focus group being video/audio recorded.	☐	☐
I understand that if any of my words are transcribed and used in reports or presentations they will not be attributed to me.	☐	☐
I understand that my participation is voluntary and that I can withdraw from the project at any time without giving any reason, and that if I choose to do this, any data I have contributed will not be used.	☐	☐
I understand that I can contact Amandip Bisel at any time.	☐	☐
I understand that the results of the study will be shared with staff at the School of Medicine at Imperial College and also may be published.	☐	☐
I understand that no data shared or published will be attributed to me personally and I will not be individually identified as part of the study.	☐	☐
I understand that participation, non-participation or withdrawal will have no impact on my interactions with or my educational experience at Imperial College	☐	☐

_____	_____	_____
Name of Participant	Date	Signature
_____		
Participant Email Address		
_____	_____	_____
Name of Person taking consent (if different from investigator)	Date	Signature
_____	_____	_____
Investigator	Date	Signature

Item A8: Year 12 focus groups questions template

Question 1: Have you decided what you want to do after your Year 13 studies? When and how did you make this decision? Were any other people involved?

Question 2: How have you started preparing for life after sixth form? If you haven't started, when do you think you will begin to focus on this?

Question 3: What have you found most challenging so far in your research/preparations?

Question 4: What support have you had (e.g. from school teachers, family, role models etc.)?

Question 5: Do you feel confident that you have had access to all the information you need to make informed decisions about your future? If not, what further information do you wish you had, to support your decision making?

Question 6: You are all doing subjects that would make you eligible to apply for a degree in Medicine, have you/did you consider Medicine as an option? If so, how did you decide whether you would pursue this option? What attracted you/put you off?

Question 7: In your opinion, do you feel that you and your peers (both within school and across other schools) have had access to the same opportunities throughout your education to support you with making decisions about your future?

Question 8: Do you feel prepared to start University? If not, what would help you?

Question 9: If you could make one comment to universities about admissions and applications to medicine, what would it be?

Question 10: Finally, are there any other comments you would like to make?

Item A9: Year 11 questionnaire questions template

1) Which gender do you most associate with?
2) What is your ethnic group? *[pre-set ethnicity codes]*
3) Please select your year group *[Year 11/12/13]*
4) Which school do you currently attend?
5) What region of the UK do you live in?
6) What is your home postcode?
7) Have either of your parents attended university?
   [No/Yes, Mum/Yes, Dad/Yes, both parents/Yes, Mum as a mature student/Yes, Dad as a mature student/Yes, both parents as mature students]
8) What GCSEs (or equivalent) are you currently studying (or have you already completed if applicable)? Please state your predicted or achieved grade for each subject.
9) What A-Levels (or equivalent) are you considering taking?
10) Have you decided what you want to do after your Year 13 studies?
    [Yes/No/considering a few options]
11) IF YES, what options are you considering after your Year 13 studies?
    [University/Apprenticeship/Work/Training Programme/Other (please describe)]
12) IF YES, When did you make your decision about what to do after your Year 13 studies?
    [Before Year 8/9 options/During Year8/9 options/Year 10/Year 11]
13) If no, when do you think you will start considering what to do after your Year 13 studies?
    [Year 11/12/13]
14) Who helped you, or will help you, to make that decision?
    [Parents/siblings/other family members/teachers (please specify which teachers e.g. head of year, head of sixth form, science teacher etc.)/careers advisor in school/careers advisor out of school/friends/websites (e.g. student room – please specify)/other (please specify)]
15) Have you undertaken any of the following activities to support your university (or other) application:(Please outline the duration and briefly explain each item that you select)
    [Work experience/volunteering/shadowing/Duke of Edinburgh Awards/University outreach programmes (please specify university, what the programme was and if it was subject specific)/paid/sponsored external courses (e.g. The National Citizenship Service, Selection test support programmes)/Other]
16) Are there any other activities that you intend to undertake in preparation for your university (or other) application? (Please briefly outline any specific plans that you have for each of the items that you select)
    [Work experience/volunteering/shadowing/Duke of Edinburgh Awards/University

outreach programmes (please specify university, what the programme was and if it was subject specific)/paid/sponsored external courses (e.g. The National Citizenship Service, Selection test support programmes)/Other]

17) Have you started to think about applying to university?
[Yes/No/I don't want to apply]

18) IF YES have you started to undertake research into the process of applying to university? *[Yes/No]*

19) IF YES, What research did you undertake when selecting your university options or what research are you undertaking if you are still in the process of considering applying? (please select all that apply)
[Visited university websites/looked at prospectus/spoken to careers adviser at school/visited university open days/other (please describe)]

20) What have you found most challenging so far in your research/preparations for after Year 13 so far? *FREE TEXT*

21) What support have you had with your research? (E.g. from school teachers, family, role models etc.)? *FREE TEXT*

22) Do you feel confident that you have had access to all the information you need to make informed decisions about your future?
[Yes/No/Not sure]

23) What further information would support your decision making and is there anything that you wish you had known earlier? (E.g. would further information from universities or support from your school be helpful? Please state any specific things (e.g. talks) that may help or would have helped at an earlier stage) *FREE TEXT*

24) Are you considering Medicine as a career option?
[Yes/No/Not sure]

25) IF NO: What has put you off studying medicine? *FREE TEXT*

26) IF YES/NOT SURE: What attracts you to study medicine? *FREE TEXT*

27) Have you researched the requirements to study medicine?
[Yes/No/Not Applicable]

28) IF NO: When will you undertake this research? *FREE TEXT*

29) IF YES: How confident do you feel that you can achieve the requirements to apply to medicine?
Academic requirements: *[Very confident/Confident/Not very confident/No confidence]*
Extra-curricular activities specifically to support your application: *[Very confident/Confident/Not very confident/No confidence]*
Other extra-curricular activities: *[Very confident/Confident/Not very confident/No confidence]*

30) Is there anything else that could support you in achieving these requirements? *FREE TEXT*

31) Academic requirements: *[Yes/No/Not sure (please explain answer)]*
Extra-curricular activities specifically to support your application: *[Yes/No/Not sure (please explain answer)]*
Other extra-curricular activities: *[Yes/No/Not sure (please explain answer)]*

32) Please explain what support would help to achieve the requirements above or why additional support would not help? *FREE TEXT*

33) FOR THOSE APPLYING TO MEDICINE: With 1 being very easy and 10 being very difficult, How difficult do you think the BMAT (BioMedical Admissions Test) entrance test is?

34) FOR THOSE APPLYING TO MEDICINE: With 1 being very easy and 10 being very difficult, How difficult do you think the UKCAT (UK Clinical Aptitude Test) entrance test is?

35) FOR THOSE APPLYING TO MEDICINE: With 1 being very easy and 10 being very difficult, how difficult do you think a panel interview for medicine will be?

36) FOR THOSE APPLYING TO MEDICINE: With 1 being very easy and 10 being very difficult, how difficult do you think an MMI (Multi-Mini Interview) for medicine will be?

37) Do you feel that you have had the same opportunities as other school students (both within your own school and in other schools) to support you in your decisions about your future? Please explain your answer. *[Yes/No/Not sure]*

38) Finally, are there any other comments you would like to make?

Item A10: Year 12 questionnaire questions template

1) Which gender do you most associate with?
2) What is your ethnic group? *[pre-set ethnicity codes]*
3) Please select your year group *[Year 11/12/13]*
4) Which school do you currently attend?
5) What region of the UK do you live in?
6) What is your home postcode?
7) Have either of your parents attended university?
   [No/Yes, Mum/Yes, Dad/Yes, both parents/Yes, Mum as a mature student/Yes, Dad as a mature student/Yes, both parents as mature students]
8) What GCSEs (or equivalent) have you completed? Please include the grades that you achieved for each subject.
9) What A-Levels (or equivalent) are you currently taking?
10) Have you decided what you want to do after your Year 13 studies?
    [Yes/No/considering a few options]
11) IF YES, what options are you considering after your Year 13 studies?
    [University/Apprenticeship/Work/Training Programme/Other (please describe)]
12) IF YES, When did you make your decision about what to do after your Year 13 studies?
    [Before Year 8/9 options/During Year8/9 options/Year 10/Year 11/Year 12]
13) If no, when do you think you will start considering what to do after your Year 13 studies?
    [Year 12/13]
14) Who helped you, or will help you, to make that decision?
    [Parents/siblings/other family members/teachers (please specify which teachers e.g. head of year, head of sixth form, science teacher etc.)/careers advisor in school/careers advisor out of school/friends/websites (e.g. student room – please specify)/other (please specify)]
15) Have you undertaken any of the following activities to support your university (or other) application:(Please outline the duration and briefly explain each item that you select)
    [Work experience/volunteering/shadowing/Duke of Edinburgh Awards/University outreach programmes (please specify university, what the programme was and if it was subject specific)/paid/sponsored external courses (e.g. The National Citizenship Service, Selection test support programmes)/Other]
16) Are there any other activities that you intend to undertake in preparation for your university (or other) application? (Please briefly outline any specific plans that you have for each of the items that you select)
    [Work experience/volunteering/shadowing/Duke of Edinburgh Awards/University outreach programmes (please specify university, what the programme was and if it was

subject specific)/paid/sponsored external courses (e.g. The National Citizenship Service, Selection test support programmes)/Other]

17) Have you started to think about applying to university?
[Yes/No/I don't want to apply]

18) IF YES have you started to undertake research into the process of applying to university? *[Yes/No]*

19) IF YES, What research did you undertake when selecting your university options or what research are you undertaking if you are still in the process of considering applying? (please select all that apply)
[Visited university websites/looked at prospectus/spoken to careers adviser at school/visited university open days/other (please describe)]

20) What have you found most challenging so far in your research/preparations for after Year 13 so far? *FREE TEXT*

21) What support have you had with your research? (E.g. from school teachers, family, role models etc.)? *FREE TEXT*

22) Do you feel confident that you have had access to all the information you need to make informed decisions about your future?
[Yes/No/Not sure]

23) What further information would support your decision making and is there anything that you wish you had known earlier? (E.g. would further information from universities or support from your school be helpful? Please state any specific things (e.g. talks) that may help or would have helped at an earlier stage) *FREE TEXT*

24) You are taking subjects that would make you eligible to study Medicine. Are you considering Medicine as a career option?
[Yes/No/Not sure]

25) IF NO: What has put you off studying medicine? *FREE TEXT*

26) IF YES/NOT SURE: What attracts you to study medicine? *FREE TEXT*

27) Have you researched the requirements to study medicine?
[Yes/No/Not Applicable]

28) IF NO: When will you undertake this research? *FREE TEXT*

29) IF YES: How confident do you feel that you can achieve the requirements to apply to medicine?
Academic requirements: *[Very confident/Confident/Not very confident/No confidence]*
Extra-curricular activities specifically to support your application: *[Very confident/Confident/Not very confident/No confidence]*
Other extra-curricular activities: *[Very confident/Confident/Not very confident/No confidence]*

30) Is there anything else that could support you in achieving these requirements? *FREE TEXT*

31) Academic requirements: *[Yes/No/Not sure (please explain answer)]*
Extra-curricular activities specifically to support your application: *[Yes/No/Not sure (please explain answer)]*
Other extra-curricular activities: *[Yes/No/Not sure (please explain answer)]*

32) Please explain what support would help to achieve the requirements above or why additional support would not help? *FREE TEXT*

33) FOR THOSE APPLYING TO MEDICINE: With 1 being not stressful at all and 10 being highly stressful, how stressful have you found the preparation of applying for university so far?

34) What have been the most stressful elements in the university application process so far?
[Choosing a course/selecting universities/writing a personal statement/finding work experience/undertaking work experience/preparation for university entrance exams/Other (please specify)]

35) FOR THOSE APPLYING TO MEDICINE: What proportion of your time out of school hours have you spent on the following in the last 12 months: (please ensure your total across all answers does not exceed 100%)
[Academic studies/preparation for university entrance tests/ preparing university personal statement/finding and completing work experience/interview preparation/other extra-curricular activities specifically to support university application/other extra-curricular activities]

36) FOR THOSE APPLYING TO MEDICINE: With 1 being very easy and 10 being very difficult, How difficult do you think the BMAT (BioMedical Admissions Test) entrance test is?

37) FOR THOSE APPLYING TO MEDICINE: With 1 being very easy and 10 being very difficult, How difficult do you think the UKCAT (UK Clinical Aptitude Test) entrance test is?

38) FOR THOSE APPLYING TO MEDICINE: With 1 being very easy and 10 being very difficult, how difficult do you think a panel interview for medicine will be?

39) FOR THOSE APPLYING TO MEDICINE: With 1 being very easy and 10 being very difficult, how difficult do you think an MMI (Multi-Mini Interview) for medicine will be?

40) Do you feel that you have had the same opportunities as other school students (both within your own school and in other schools) to support you in your decisions about your future? Please explain your answer. *[Yes/No/Not sure]*

41) Finally, are there any other comments you would like to make?

Item A11: Year 13 questionnaire questions template

1) Which gender do you most associate with?
2) What is your ethnic group? *[pre-set ethnicity codes]*
3) Please select your year group *[Year 11/12/13]*
4) Which school do you currently attend?
5) What region of the UK do you live in?
6) What is your home postcode?
7) Have either of your parents attended university?
   [No/Yes, Mum/Yes, Dad/Yes, both parents/Yes, Mum as a mature student/Yes, Dad as a mature student/Yes, both parents as mature students]
8) What GCSEs (or equivalent) have you completed? Please include the grades that you achieved for each subject.
9) What A-Levels (or equivalent) are you currently taking?
10) Have you decided what you want to do after your Year 13 studies?
    [Yes/No/considering a few options]
11) IF YES, what options are you considering after your Year 13 studies?
    [University/Apprenticeship/Work/Training Programme/Other (please describe)]
12) IF YES, When did you make your decision about what to do after your Year 13 studies?
    [Before Year 8/9 options/During Year8/9 options/Year 10/Year 11/Year 12/Year 13]
13) If no, when do you think you will start considering what to do after your Year 13 studies?
    [Year 13/After Year 13]
14) Who helped you, or will help you, to make that decision?
    [Parents/siblings/other family members/teachers (please specify which teachers e.g. head of year, head of sixth form, science teacher etc.)/careers advisor in school/careers advisor out of school/friends/websites (e.g. student room – please specify)/other (please specify)]
15) Have you undertaken any of the following activities to support your university (or other) application:(Please outline the duration and briefly explain each item that you select)
    [Work experience/volunteering/shadowing/Duke of Edinburgh Awards/University outreach programmes (please specify university, what the programme was and if it was subject specific)/paid/sponsored external courses (e.g. The National Citizenship Service, Selection test support programmes)/Other]
16) Are there any other activities that you intend to undertake in preparation for your university (or other) application? (Please briefly outline any specific plans that you have for each of the items that you select)
    [Work experience/volunteering/shadowing/Duke of Edinburgh Awards/University outreach programmes (please specify university, what the programme was and if it was

subject specific)/paid/sponsored external courses (e.g. The National Citizenship Service, Selection test support programmes)/Other]

17) Have you applied to university or will you be doing so for 2018 entry?
[Yes – already applied/Yes – will apply before deadline/No - I don't want to apply/No – I will apply after the deadline/No – I will apply next year/Not sure]

18) IF YES What courses have you applied to/will you be applying to and where?

19) IF NO Why do you not want to apply to university?

20) IF YES have you started to undertake research into the process of applying to university? *[Yes/No]*

21) IF YES, What research did you undertake when selecting your university options or what research are you undertaking if you are still in the process of considering applying? (please select all that apply)
[Visited university websites/looked at prospectus/spoken to careers adviser at school/visited university open days/other (please describe)]

22) What have you found most challenging so far in your research/preparations for after Year 13 so far? *FREE TEXT*

23) What research/preparation did you find most helpful for selecting your course and university choices? *FREE TEXT*

24) What support have you had with your research? (e.g. from school teachers, family, role models etc.)? *FREE TEXT*

25) How have you found the experience of applying to University? Please select all that apply: *[Stressful/enjoyable/challenging/easy/good experience for the future/negative experience/long/short/simple/complex/other (please describe)]*

26) Please describe any challenges that you have found particularly difficult in terms of the university application process so far. *FREE TEXT*

27) What support do you think might have lessened these challenges? *FREE TEXT*

28) Have you had to interview for any of your university choices?
[Yes/No/Not yet but likely/not yet but unlikely]

29) IF YES how was the interview experience and how did you prepare for it? *FREE TEXT*

30) IF LIKELY what are you doing/will you do to prepare for interview?

31) Do you feel prepared to start university?
[Yes/No/Not sure/NA]

32) What would help you feel more prepared? (e.g. is there any further information that universities could provide?) *FREE TEXT*

33) Do you feel confident that you have had access to all the information you need to make informed decisions about your future?
[Yes/No/Not sure]

34) What further information would have supported your decision making and is there anything that you wish you had known earlier? (e.g. would further information from universities or support from your school be helpful? Please state any specific things (e.g. talks) that may help or would have helped at an earlier stage) *FREE TEXT*

35) You are taking subjects that would make you eligible to study Medicine. Did you consider Medicine as a career option?
[Yes/No]

36) IF NO: What has put you off studying medicine? *FREE TEXT*

37) IF YES: What attracts you to study medicine? *FREE TEXT*

38) Have you researched the requirements to study medicine?
[Yes/No/Not Applicable]

39) IF NO: Why not? *FREE TEXT*

40) IF YES: How confident do you feel that you can achieve the requirements to apply to medicine?
Academic requirements: *[Very confident/Confident/Not very confident/No confidence]*
Extra-curricular activities specifically to support your application: *[Very confident/Confident/Not very confident/No confidence]*
Other extra-curricular activities: *[Very confident/Confident/Not very confident/No confidence]*

41) Is there anything else that could support you in achieving these requirements? *FREE TEXT*

42) Academic requirements: *[Yes/No/Not sure (please explain answer)]*
Extra-curricular activities specifically to support your application: *[Yes/No/Not sure (please explain answer)]*
Other extra-curricular activities: *[Yes/No/Not sure (please explain answer)]*

43) Please explain what support would help to achieve the requirements above or why additional support would not help? *FREE TEXT*

44) FOR THOSE APPLYING TO MEDICINE: With 1 being not stressful at all and 10 being highly stressful, how stressful have you found the preparation of applying for university?

45) What were the most stressful elements in the university application process?
[Choosing a course/selecting universities/writing a personal statement/finding work experience/undertaking work experience/preparation for university entrance exams/Other (please specify)]

46) FOR THOSE APPLYING TO MEDICINE: What proportion of your time out of school hours have you spent on the following in the last 24 months: (please ensure your total across all answers does not exceed 100%)
[Academic studies/preparation for university entrance tests/ preparing university

personal statement/finding and completing work experience/interview preparation/other extra-curricular activities specifically to support university application/other extra-curricular activities]

47) Please can you rank the following in terms of how important you feel they are to the success of your university application: (1 being most important, 7 being least important) *[Academic studies/preparation for university entrance tests/ preparing university personal statement/finding and completing work experience/interview preparation/other extra-curricular activities specifically to support university application/other extra-curricular activities]*

48) FOR THOSE APPLYING TO MEDICINE: With 1 being very easy and 10 being very difficult, How difficult do you think the BMAT (BioMedical Admissions Test) entrance test is?

49) FOR THOSE APPLYING TO MEDICINE: With 1 being very easy and 10 being very difficult, How difficult do you think the UKCAT (UK Clinical Aptitude Test) entrance test is?

50) FOR THOSE APPLYING TO MEDICINE: With 1 being very easy and 10 being very difficult, how difficult do you think a panel interview for medicine will be?

51) FOR THOSE APPLYING TO MEDICINE: With 1 being very easy and 10 being very difficult, how difficult do you think an MMI (Multi-Mini Interview) for medicine will be?

52) FOR THOSE APPLYING TO MEDICINE: With 1 being very prepared and 10 being very unprepared, how prepared, how prepared were you for the BMAT entrance test?

53) FOR THOSE APPLYING TO MEDICINE: With 1 being very prepared and 10 being very unprepared, how prepared, how prepared were you for the UKCAT entrance test?

54) FOR THOSE APPLYING TO MEDICINE: With 1 being very prepared and 10 being very unprepared, how prepared are you for a panel interview for medicine?

55) FOR THOSE APPLYING TO MEDICINE: With 1 being very prepared and 10 being very unprepared, how prepared are you for a MMI interview for medicine?

56) FOR THOSE APPLYING TO MEDICINE: With 1 being very useful and 10 being not at all useful, how useful were any preparation materials that you used for the BMAT entrance test?

57) FOR THOSE APPLYING TO MEDICINE: With 1 being very useful and 10 being not at all useful, how useful were any preparation materials that you used for the UKCAT entrance test?

58) Please describe any preparation material you used for BMAT/UKCAT (including any associated costs) and whether these were provided by your school or you sourced them yourself. *FREE TEXT*

59) Do you feel that you have had the same opportunities as other school students (both within your own school and in other schools) to support you in your decisions about your future? Please explain your answer. *[Yes/No/Not sure]*

60) Finally, are there any other comments you would like to make?

Item A12: Email/newsletter advert used to recruit participants for questionnaire (via schools and colleges)

Subject title: Research into applying to Medicine

Dear Colleague,

As part of our commitment to widening participation, the Outreach team have invested in postgraduate research looking at the process and challenges of applying to UK Medical Schools. As part of the research we would now like to offer Year 11-13 students the opportunity to feed into the project by completing a short questionnaire to tell us about their experiences and/or views of the medical application process and their decision-making process when considering their future career options.

The questionnaire should take no longer than 10 minutes to complete and students have the opportunity to enter themselves for a prize draw for one of three £50 Amazon vouchers upon completion.

I would be grateful if you could send this link to the questionnaire WEBLINK to your Year 11-13 students that fit the criteria below:

The target audience for the questionnaire is as follows:

- Students in Year 12 and Year 13 who are undertaking A-Levels that would make them eligible to apply to study medicine (even where grades may not be achieved or where they have decided not to opt for medicine). I.e. they are studying Chemistry and Biology.
- Students in Year 11 who have applied for or are likely to select appropriate subjects for medicine at A-Level.
- Students in Year 11 who have performed well/shown strong interest in the sciences at GCSE level even if they have not applied for all of the appropriate subjects for medicine at post-16 level.

If you have any queries about the project or the questionnaire, please do not hesitate to contact Amandip Bisel at xxx@imperial.ac.uk.

Thank you

Item A13: School recruitment advert for teacher focus group

Your opportunity to get involved in research into widening access to medical education!

Dear xxx,

I hope you are all looking forward to the festive break ahead and a well deserved rest.

I am writing to invite you to participate in our teacher focus group on **xxx**. I am currently undertaking a PhD in collaboration with the Outreach team and Department of Medicine at Imperial College London looking the challenges of accessing medical education in the UK. I have undertaken focus groups with students and would now like to get the perspective of teachers and careers advisors involved in the process.

The focus group will run from 5.30pm-7.30pm (registration from 5.00pm) and will include an interactive session on how teachers and careers advisors can best support their students in their application to medicine with Professor Kevin Murphy, Admissions Tutor in medicine at Imperial College London with a responsibility for widening participation. Professor Murphy will also be happy to answer any questions you have on the application process

The meeting will take place in the Wohl Reach Out Lab so you will have an opportunity to see the facilities we have if you have not done so before. There will also be time to network with teachers from other schools and members of the team at the College.

We would really appreciate your input to help shape our response to the challenges of accessing medical education. We aim to develop a toolkit as part of this research project and your input would be invaluable in its development.

We would like this event to be informal and as such there will be wine and nibbles provided!

Important information:
When: xxx, 17:00 – 19:30
Where: Wohl Reach Out Lab, Skempton, South Kensington (I will send out a map nearer the time)

Please could you let me know whether you will be able to attend this meeting by xxx so we can make sure we have enough food and drink for everyone. Please also let me know if you have any dietary requirements. We do have a limited number of spaces and these will be filled on a first come first served basis.

If you know of anyone else that would like to come along or feel that there is someone else more appropriate within your institution to attend, please feel free to forward this invitation on to them and let me know their contact details so I can add them to our contact list and let them know of future events.

I look forward to hearing from you.

Kind regards,

Amandip

Item A14: Participant information sheet for teacher focus group

PROJECT TITLE

Identifying the barriers to entry and completion in medical education

INVITATION

You are being asked to take part in a research study on the experiences of school and college advisors in supporting students in researching and applying to UK Medical Schools including whether to apply and the UCAS application/interview process (as applicable). The purpose of the study is to identify the challenges that students and their key influencers face throughout this process.

My name is Amandip Bisel and I am a PhD student at Imperial College looking at access to medical education in the UK. My contact email address is: xxx@imperial.ac.uk.

This research is being supervised by Professor Kevin Murphy (xxx@imperial.ac.uk), Professor Sue Smith (xxx@imperial.ac.uk) and Dr Annalisa Alexander (xxx@imperial.ac.uk) and has been approved by the Medical Education Ethics Committee at Imperial College.

WHAT WILL HAPPEN

In this study, you will be asked to participate in a focus group where you will be asked a series of questions relating to the above topic. The session will be recorded and transcribed at a later date. All responses will be kept anonymous and you will not be individually identified as part of the study.

TIME COMMITMENT

The session is expected to last no more than 60 minutes.

PARTICIPANTS' RIGHTS

Your participation in this study is voluntary. You may decide to stop being a part of the research study at any time without explanation.

You have the right to ask that any data you have supplied to that point be withdrawn/destroyed.

You have the right to omit or refuse to answer or respond to any question that is asked of you.

You have the right to have your questions about the procedures answered (unless answering these questions would interfere with the study's outcome). If you have any questions as a result of reading this information sheet, you should ask the researcher before the study begins.

BENEFITS AND RISKS

There are minimal identified benefits or risks for you in this study. Your decision to participate or not participate in this study will not impact on any future engagement with Imperial College London.

CONFIDENTIALITY/ANONYMITY

The data we collect do not contain any personal information about you. No one will link the data you provided to the identifying information you supplied (e.g. name, email address).

The data will be used as part of a wider study looking at patterns in the challenges faced in UK Medical School admissions and study. Individual participants will not be identified in any data presented as part of publications and/or presentations.

FOR FURTHER INFORMATION

Professor Kevin Murphy will be glad to answer your questions about this study at any time. You may contact him at xxx@imperial.ac.uk.

Item A15: Participant consent form for teacher focus group

Imperial College London

School of Medicine
Medical Education Ethics Committee

PROJECT TITLE Identifying the barriers to entry and completion in medical education

Name of Investigator: Amandip Bisel

Participant Identification Number: (office use only)

If you agree to participate, please complete this consent form and return to Amandip Bisel, a.bisel16@imperial.ac.uk.

	YES	NO
I have read and understood the participant information sheet about the project. The risks and benefits have been discussed and all my questions have been satisfactorily answered.	☐	☐
I agree to participate in this focus group as outlined on the information sheet.	☐	☐
I agree to my participation in this focus group being video/audio recorded.	☐	☐
I understand that if any of my words are transcribed and used in reports or presentations they will not be attributed to me.	☐	☐
I understand that my participation is voluntary and that I can withdraw from the project at any time without giving any reason, and that if I choose to do this, any data I have contributed will not be used.	☐	☐
I understand that I can contact Amandip Bisel at any time.	☐	☐
I understand that the results of the study will be shared with staff at the School of Medicine at Imperial College and also may be published.	☐	☐
I understand that no data shared or published will be attributed to me personally and I will not be individually identified as part of the study.	☐	☐
I understand that participation, non-participation or withdrawal will have no impact on my interactions with or my educational experience at Imperial College	☐	☐

_____	_____	_____
Name of Participant	Date	Signature
_____		
Participant Email Address		
_____	_____	_____
Name of Person taking consent (if different from investigator)	Date	Signature
_____	_____	_____
Investigator	Date	Signature

Item A16: Joining instructions sent to teacher focus group participants

Dear xxx,

Thank you for accepting our invitation to participate in the focus group looking at applications to medicine, please find below further information about the event:

Date, time and registration: The event will take place on xxx in the WOHL Reach Out Lab at the South Kensington campus (please visit: https://www.imperial.ac.uk/be-inspired/student-recruitment-and-outreach/schools-and-colleges/wohl-reach-out-lab/directions-and-contacts/ for directions). Registration will commence from 5.00pm for a prompt 5.30pm start. The formal programme will finish by 7.30pm though you are welcome to stay and continue discussions until 8.00pm. Light refreshments (wine and nibbles!) will be provided but you are welcome to bring along something more substantial with you.

Information: Please find attached an information sheet providing further details about the project. Please do not hesitate to contact me if you have any further queries. Please also find attached a consent form for your information. I will bring along printed copies on the day for you to complete and sign.

You are not required to do any preparation in advance of the event, though it would be helpful if you could check how many applicants/offers to medicine your institution has had over the past 5 years.

Professor Kevin Murphy, Admissions Tutor in Medicine at Imperial College London with a responsibility for widening participation, will also be running a session during the evening on applications to medicine and will be happy to answer any questions that you may have.

If you require any further information at this stage, please do not hesitate to get in touch.

I look forward to meeting you on Wednesday.

Kind regards,

Amandip

Item A17: Teacher focus group questions template

Question 1: At what stage do your students start thinking about their post-18 options? Do you notice any difference for students wanting to apply to medicine?

Question 2: Generally speaking, what do your students find most challenging in their research/preparations for medical applications?

Question 3: What do you as staff find most challenging about supporting students with applications to medicine?

Question 4: How do you keep up to date with changes to the application process (not specifically for medicine but including medicine)?

Question 5: What resources/support does your institution offer to a) all HE applicants b) to medical applicants (of different)?

Question 6: Do you feel confident that your institution has access to and is able to provide all the information that students need to make informed decisions about their future (not specifically for medicine but including medicine)?

Question 7: What further information could be provided to support advice giving/decision making?

Question 8: What further information could be provided to support the application process for medicine?

Question 9: Does your institution provide any resources or support with entrance exam and interview preparation for medicine? If yes, please describe. If no, please let us know if you signpost students elsewhere.

Question 10: Do you feel your students start university feeling prepared? If not, what would help?

Question 11: If you could make one comment to universities about admissions and applications to medicine, what would it be?

Question 12: Finally, are there any other comments you would like to make?

Appendix B

Figure B1

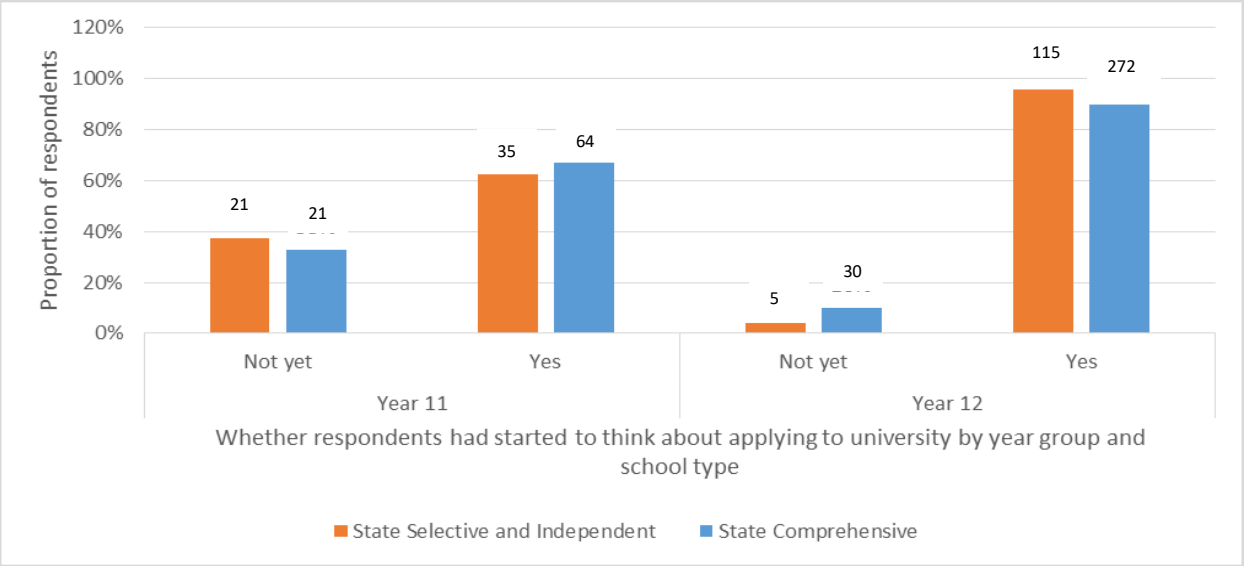


Figure B1: ***Have you started to think about applying to university?***

Bar chart showing the percentage and number of responses within each category from Year 11 and 12 respondents to the question *'Have you started to think about applying to university?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (Year 11, n = 64; Year 12, n = 302). Orange bars depict responses from participants from the state selective and independent sectors (Year 11, n = 56; Year 12, n = 120).

Figure B2

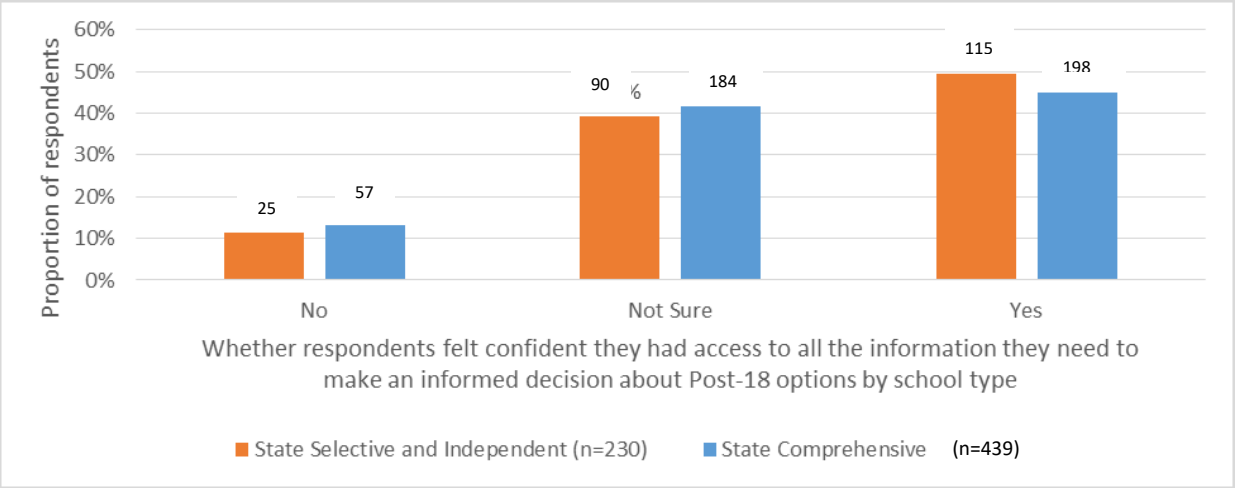


Figure B2: ***Are you confident you have had access to all the information you need to make an informed decision on your Post-18 options?***

Bar chart showing the percentage and number of responses within each category from all respondents to the question *'Are you confident you have had access to all the information you need to make an informed decision on your Post-18 options?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 439). Orange bars depict responses from participants from the state selective and independent sectors (n = 230).

Figure B3

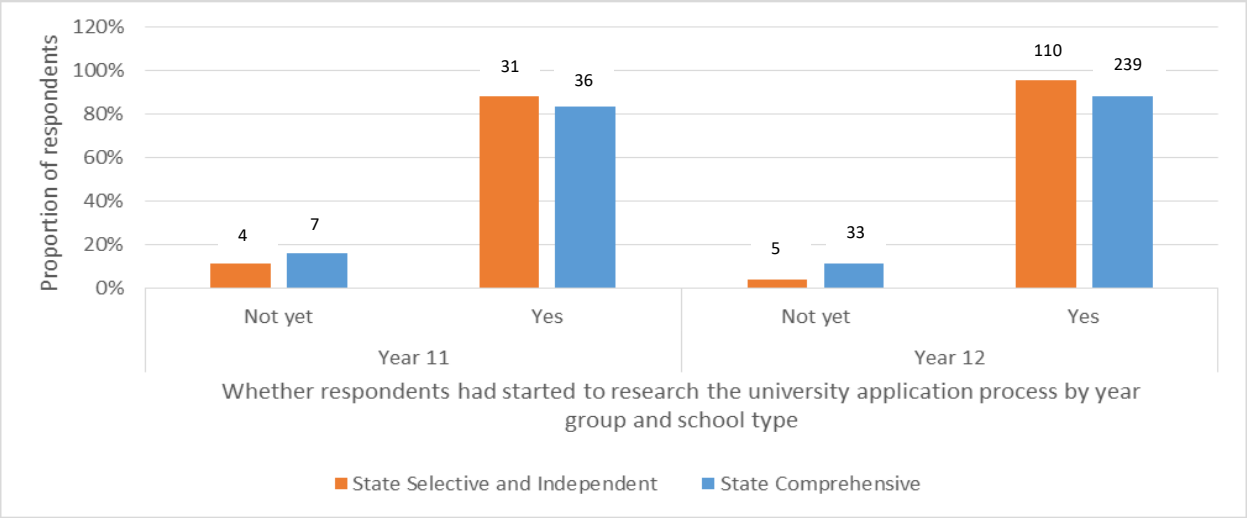


Figure B3: ***Have you started to research the process of applying to university?***

Bar chart showing the percentage and number of responses within each category from Year 11 and 12 respondents to the question *'Have you started to research the process of applying to university?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (Year 11, n = 43; Year 12, n = 272). Orange bars depict responses from participants from the state selective and independent sectors (Year 11, n = 35; Year 12, n = 115).

Figure B4 – multiple responses per student

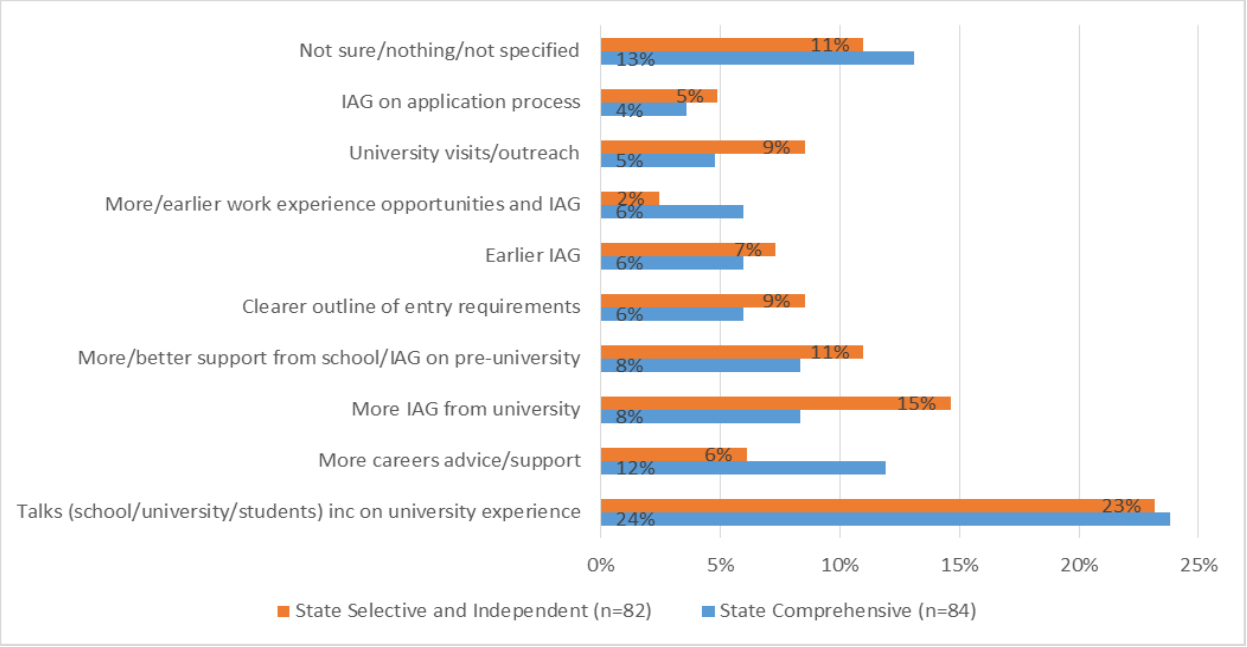


Figure B4: What further information would support your decision making?

Bar chart showing the percentage of responses within each category from Year 11 respondents to the question *'What further information would support your decision making?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 84). Orange bars depict responses from participants from the state selective and independent sectors (n = 82).

Figure B4 shows that Year 11 students, from across all sectors, have an appetite for more talks, both from school experts but also from universities and university students.

The talks being referred to here are not specific IAG talks, but an insight into the general university experience and how university differs to their current educational experience. Respondents felt that hearing from current university students about their experiences would be valuable to better understand and get a realistic view of the journey to and through university. They also felt that hearing about the university experience would help to engage them with thinking about their future decisions and to better understand what they are working towards. This work is what many universities would deem as outreach work but the indication here is that more of this is required at key stage 4.

In accessing information specifically about careers and higher education choices, it is interesting to note that double the proportion of respondents from the state comprehensive sector (12%) felt more careers advice and support would be useful. This corresponds with the results in figure 2.10 in Chapter 2, where far more respondents from the state selective and independent sector stated that they had received support from a careers advisor than respondents from the state comprehensive sector. It is possible, therefore, that state comprehensive students are noticing the absence of dedicated careers staff and feel that they are missing out by not benefiting from such expertise.

Conversely, almost double the proportion of state selective and independent sector respondents (15% compared to 8% from the state comprehensive sector) said that they would like more IAG from universities directly, by the time they are in Year 11. They want subject-specific and institution-specific information before they move into key stage 5 and they would like it to come from the universities themselves. This could be because they already feel that they receive guidance from careers advisors and so would want to any additional support to be from external sources of information, or it could be that they want to hear detailed information from universities in more of a recruitment capacity rather than an outreach capacity. This is possibly also indicated in the state selective and independent sector's higher proportion of responses citing a need for clearer outlines of entry requirements, IAG on the university application process and visits to universities.

On the other hand, 6% of state comprehensive sector respondents (compared to 2% of the state selective and independent sector respondents) wanted more IAG specifically around work experience opportunities and indeed, earlier work experience opportunities. This is somewhat surprising given Year 11 state comprehensive sector respondents did not mention work experience as a challenge.

However, the respondents seem to be mainly referring to accessing work experience opportunities that are a standard part of the key stage 4 curriculum.

"Perhaps having some experience within your chosen field, such as, for those who want to do medicine, they'd shadow doctors, or students that would like to study law, would see what a law firm's like etc."

Quote from a respondent in a Year 11 state comprehensive school to the question: 'What further information would support your decision making?' in the questionnaire.

There isn't necessarily a strong awareness that work experience is required for medicine, but students are keen to be able to have access to the vocations they are considering before they make their post-16 choices and they would like support in finding out more about work experience opportunities and accessing them.

Perhaps most surprising therefore is that, proportionally, more of the state selective and independent sector respondents (11% compared to 8% for the state comprehensive sector) wanted better support from their school in terms of IAG for both post-16 and post-18 options.

Figure B5 – multiple responses per student

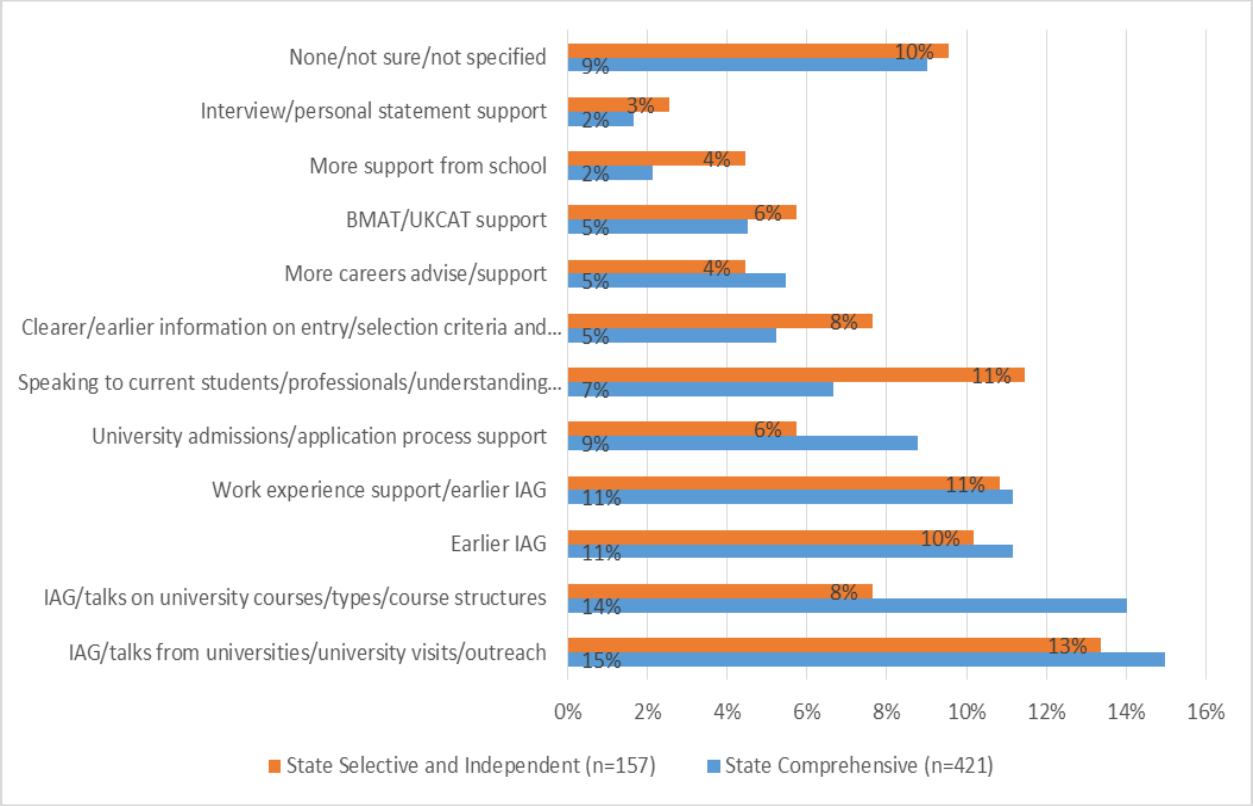


Figure B5: What further information would support your decision making?

Bar chart showing the percentage of responses within each category from Year 12 respondents to the question *'What further information would support your decision making?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 421). Orange bars depict responses from participants from the state selective and independent sectors (n = 157).

Interestingly, the responses of the state selective and independent sector in figure B5 were largely aligned with the responses of the state comprehensive sector. There were three areas of notable difference; otherwise responses from both sectors were proportionally similar, suggesting that respondents from both categories felt that they would additionally benefit from similar things.

It is striking to see the difference in the proportion of state comprehensive respondents (13% and 11%) and state selective and independent sector respondents (5% and 5%) who still felt better or more IAG from universities and about universities/courses was needed by the time they were in Year 13.

Figure B6 – multiple responses per student

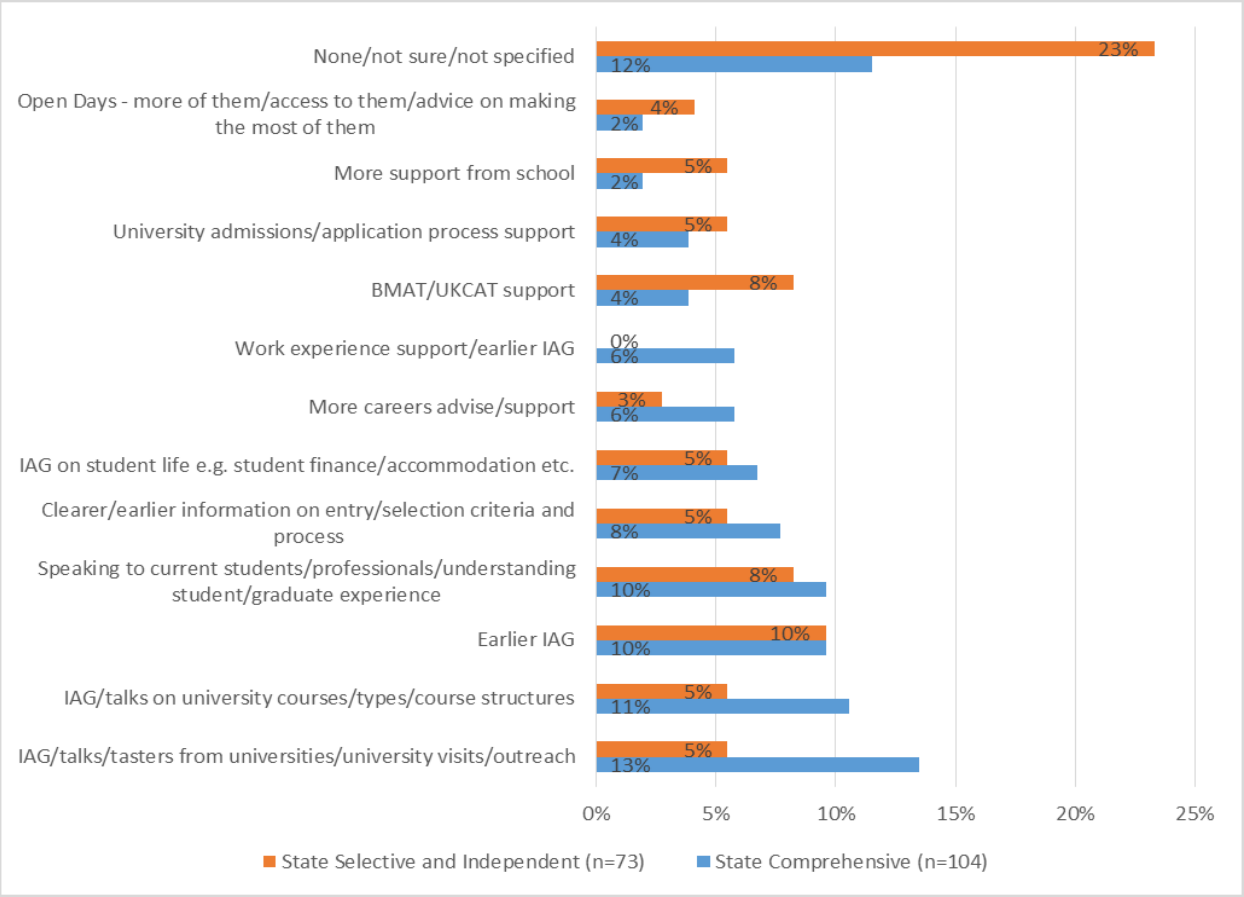


Figure B6: What further information would support your decision making?

Bar chart showing the percentage of responses within each category from Year 13 respondents to the question *'What further information would support your decision making?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 104). Orange bars depict responses from participants from the state selective and independent sectors (n = 73).

Another category of note from figure B6 is the suggestion of more support and earlier guidance on IAG for gaining relevant work experience. This was not mentioned by respondents from the state selective and independent sector but was mentioned in 6% of responses from the state comprehensive sector. This again highlights the challenge for students from the state comprehensive sector accessing, and receiving timely information regarding, work experience opportunities.

The final categories to discuss from figure B6 are in relation to accessing more support from school, on entrance exams and in regards to the admissions and application process for university, particularly for medicine. These areas for additional support were all cited, proportionally more by respondents from the state selective and independent sector.

Figure B7 – multiple responses per student

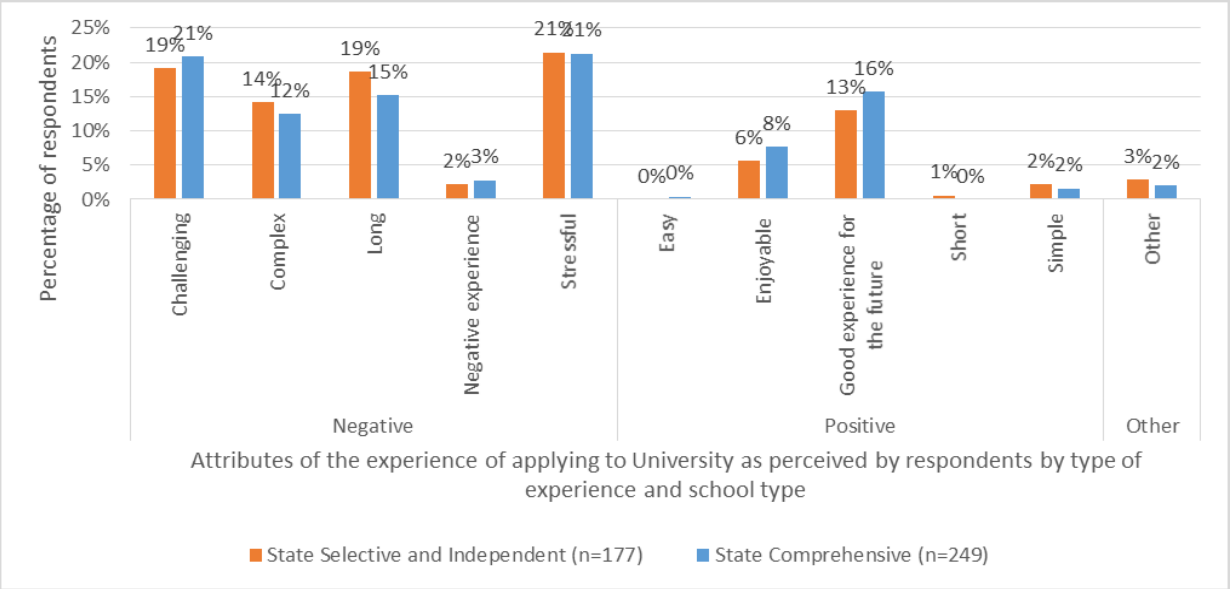


Figure B7: ***How have you found the experience of applying to University?***

Bar chart showing the percentage of responses within each category from Year 13 respondents to the question *'How have you found the experience of applying to University?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 249). Orange bars depict responses from participants from the state selective and independent sectors (n = 177).

Figure B8

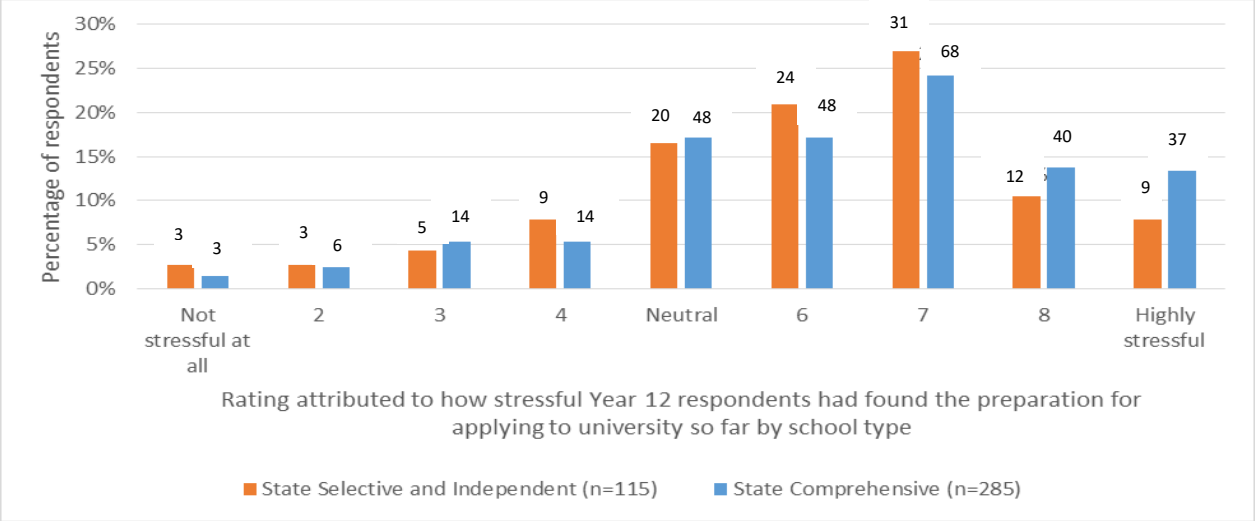


Figure B8: ***How stressful have you found preparation for applying to university so far?***

Bar chart showing the percentage and number of responses within each category from Year 12 respondents to the question *'How stressful have you found preparation for applying to university so far?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 285). Orange bars depict responses from participants from the state selective and independent sectors (n = 115).

Figure B9

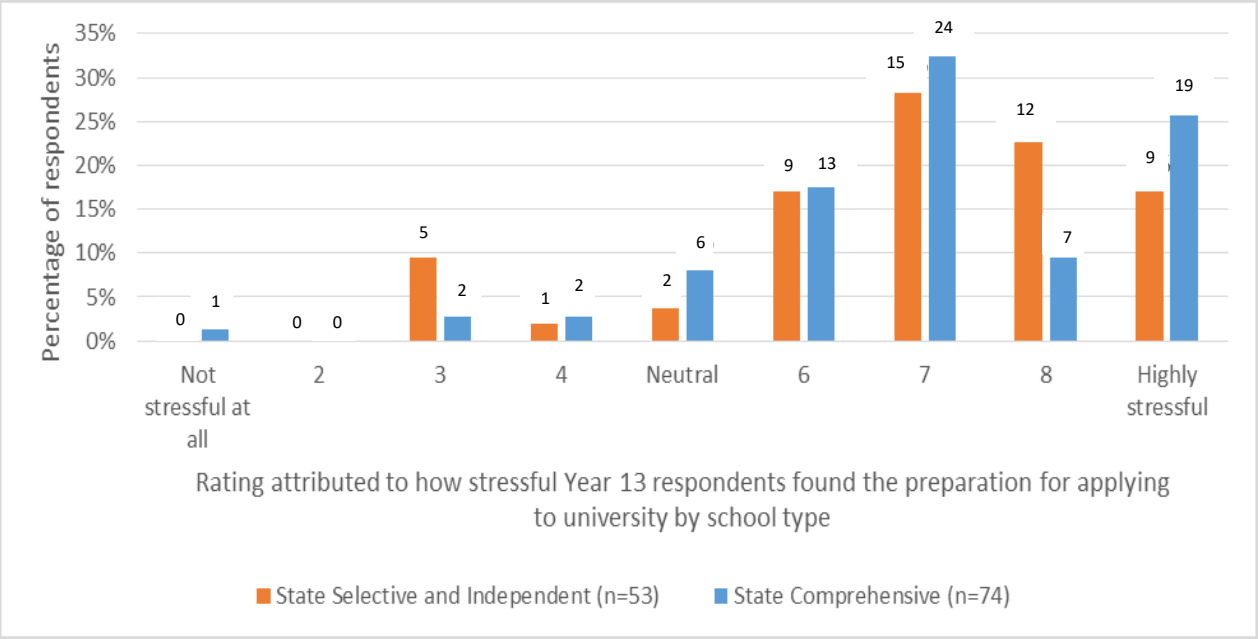


Figure B9: ***How stressful have you found preparation for applying to university?***

Bar chart showing the percentage and number of responses within each category from Year 13 respondents to the question *'How stressful have you found preparation for applying to university?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 74). Orange bars depict responses from participants from the state selective and independent sectors (n = 53).

Figure B10

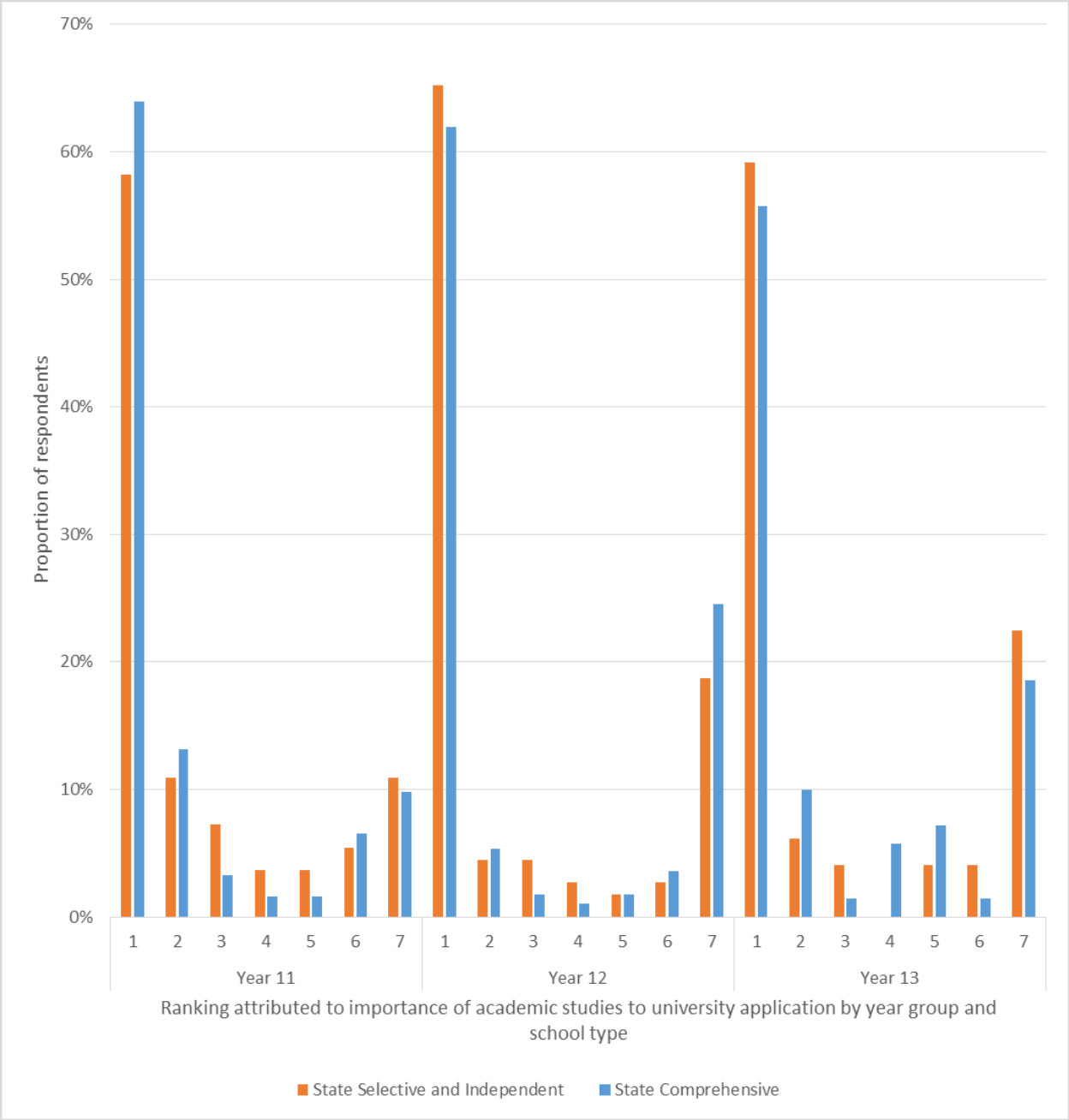


Figure B10: ***How important are academic studies to the university application process? Rank 1-7***

Bar chart showing the percentage of responses within each category from Year 11, 12 and 13 respondents to the question *'How important are academic studies (compared to the other options listed) to the university application process? Please rank between 1 and 7'* in the questionnaire where 1 = most important attribute and 7 = least important attribute. Blue bars depict responses from participants from the state comprehensive sector (Year 11, n = 61; Year 12, n = 281; Year 13, n = 70). Orange bars depict responses from participants from the state selective and independent sectors (Year 11, n = 55; Year 12, n = 112; Year 13, n = 49).

Figure B11

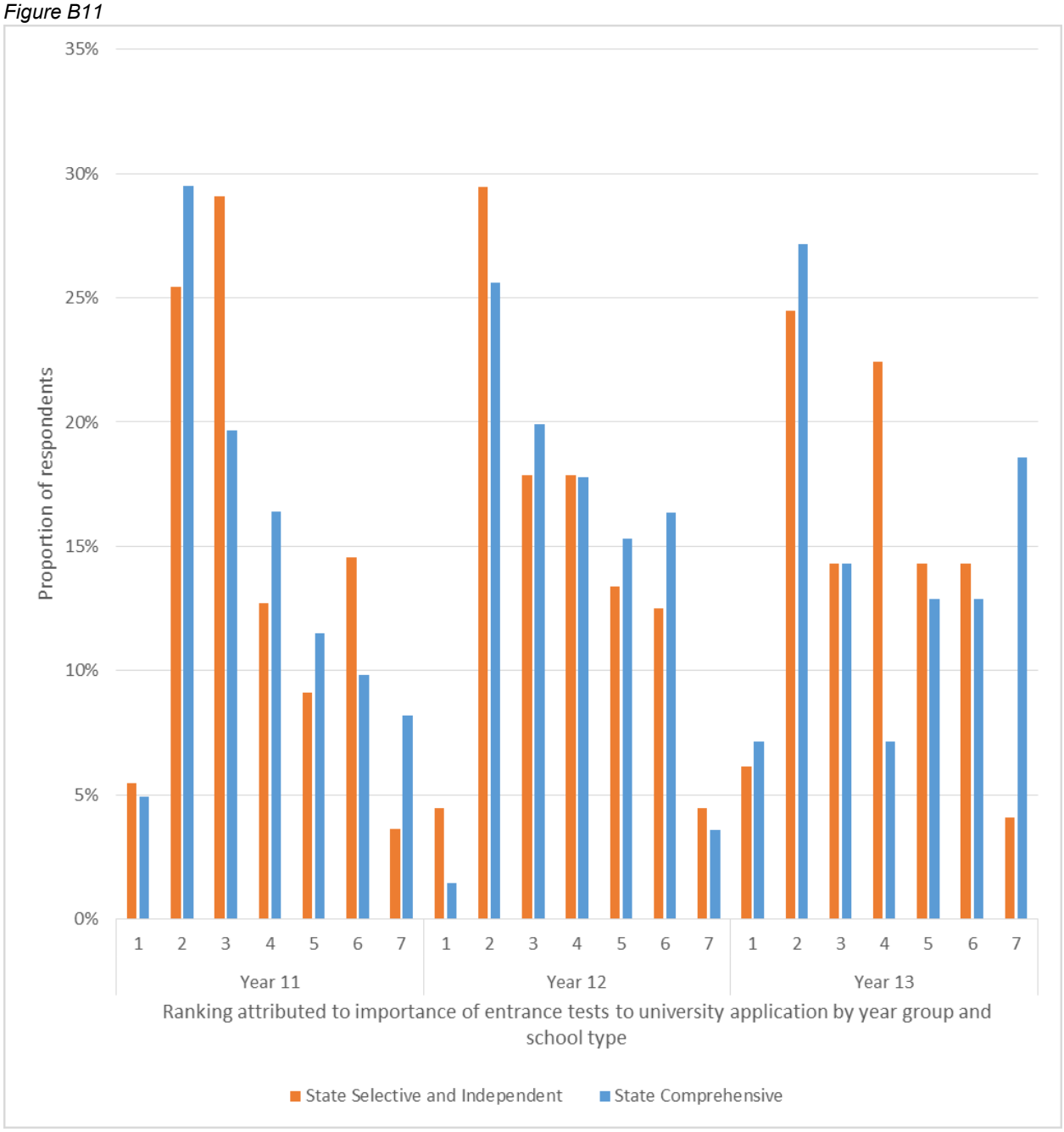


Figure B11: ***How important are entrance tests to the university application process? Rank 1-7***

Bar chart showing the percentage of responses within each category from Year 11, 12 and 13 respondents to the question *'How important are entrance tests (compared to the other options listed) to the university application process? Please rank between 1 and 7'* in the questionnaire where 1 = most important attribute and 7 = least important attribute. Blue bars depict responses from participants from the state comprehensive sector (Year 11, n = 61; Year 12, n = 281; Year 13, n = 70). Orange bars depict responses from participants from the state selective and independent sectors (Year 11, n = 55; Year 12, n = 112; Year 13, n = 49).

Figure B12

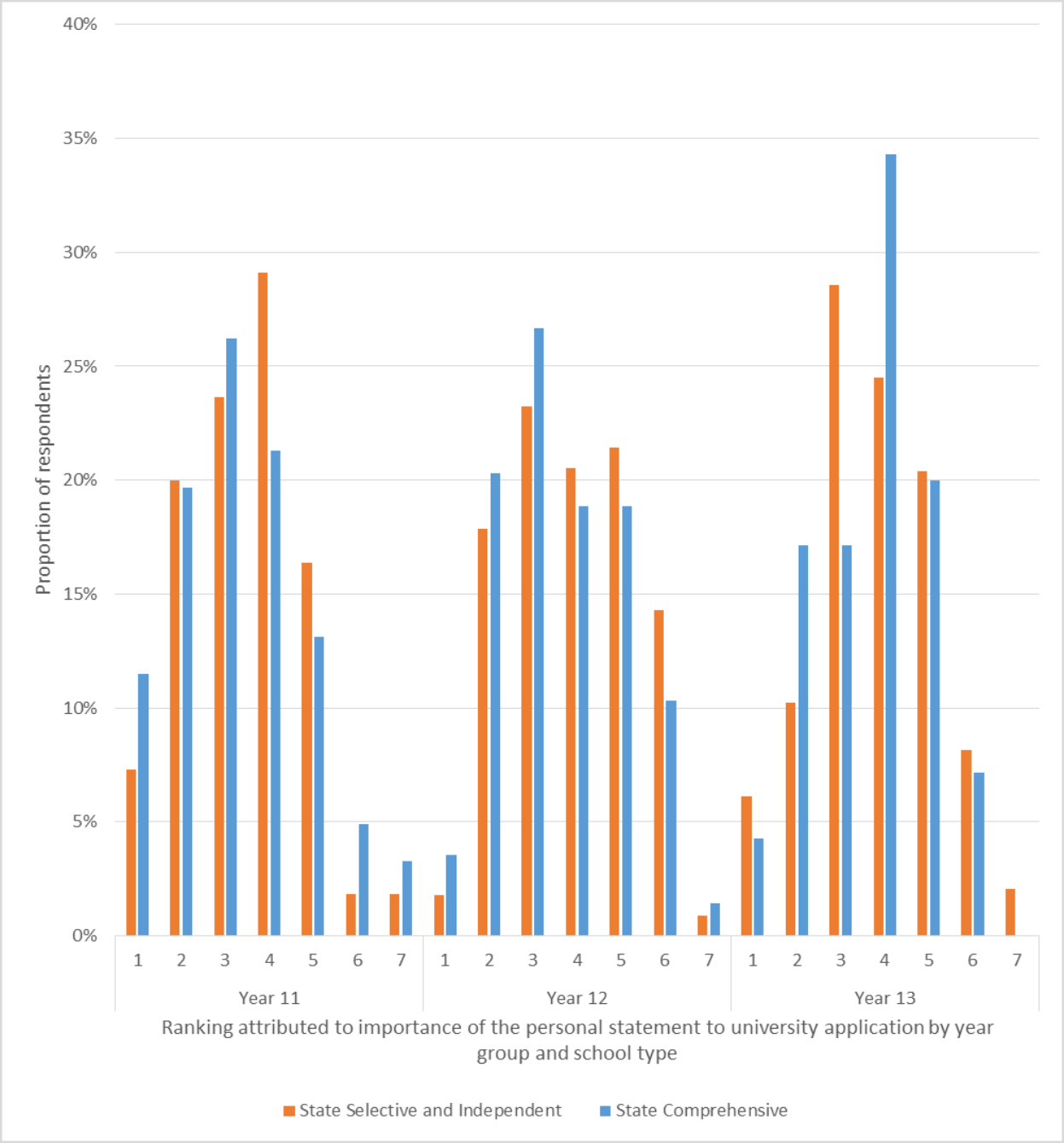


Figure B12: ***How important is the personal statement to the university application process? Rank 1-7***

Bar chart showing the percentage of responses within each category from Year 11, 12 and 13 respondents to the question *'How important is the personal statement (compared to the other options listed) to the university application process? Please rank between 1 and 7'* in the questionnaire where 1 = most important attribute and 7 = least important attribute. Blue bars depict responses from participants from the state comprehensive sector (Year 11, n = 61; Year 12, n = 281; Year 13, n = 70). Orange bars depict responses from participants from the state selective and independent sectors (Year 11, n = 55; Year 12, n = 112; Year 13, n = 49).

Figure B13

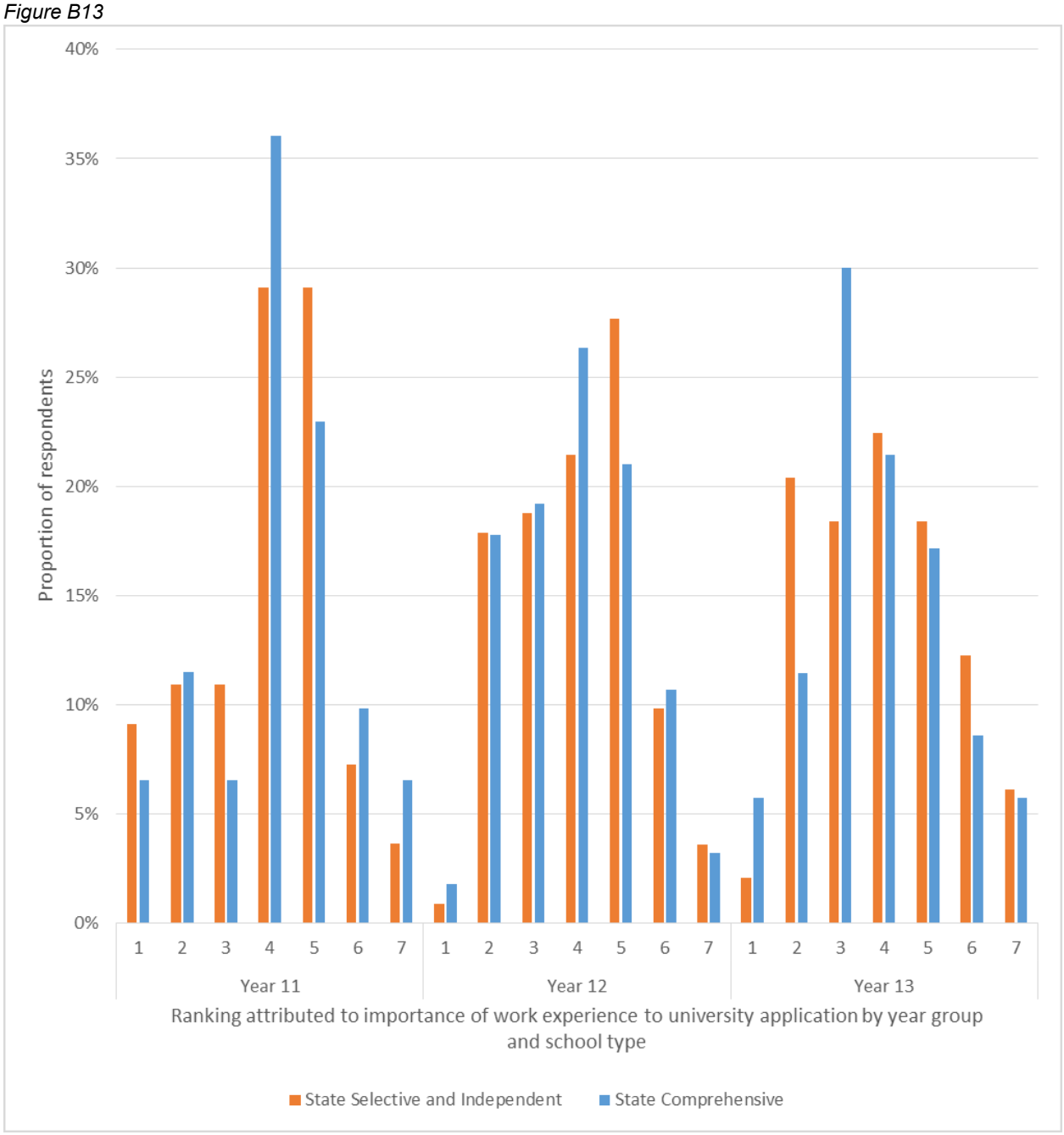


Figure B13: ***How important is work experience to the university application process? Rank 1-7***

Bar chart showing the percentage of responses within each category from Year 11, 12 and 13 respondents to the question *'How important is work experience (compared to the other options listed) to the university application process? Please rank between 1 and 7'* in the questionnaire where 1 = most important attribute and 7 = least important attribute. Blue bars depict responses from participants from the state comprehensive sector (Year 11, n = 61; Year 12, n = 281; Year 13, n = 70). Orange bars depict responses from participants from the state selective and independent sectors (Year 11, n = 55; Year 12, n = 112; Year 13, n = 49).

Figure B14

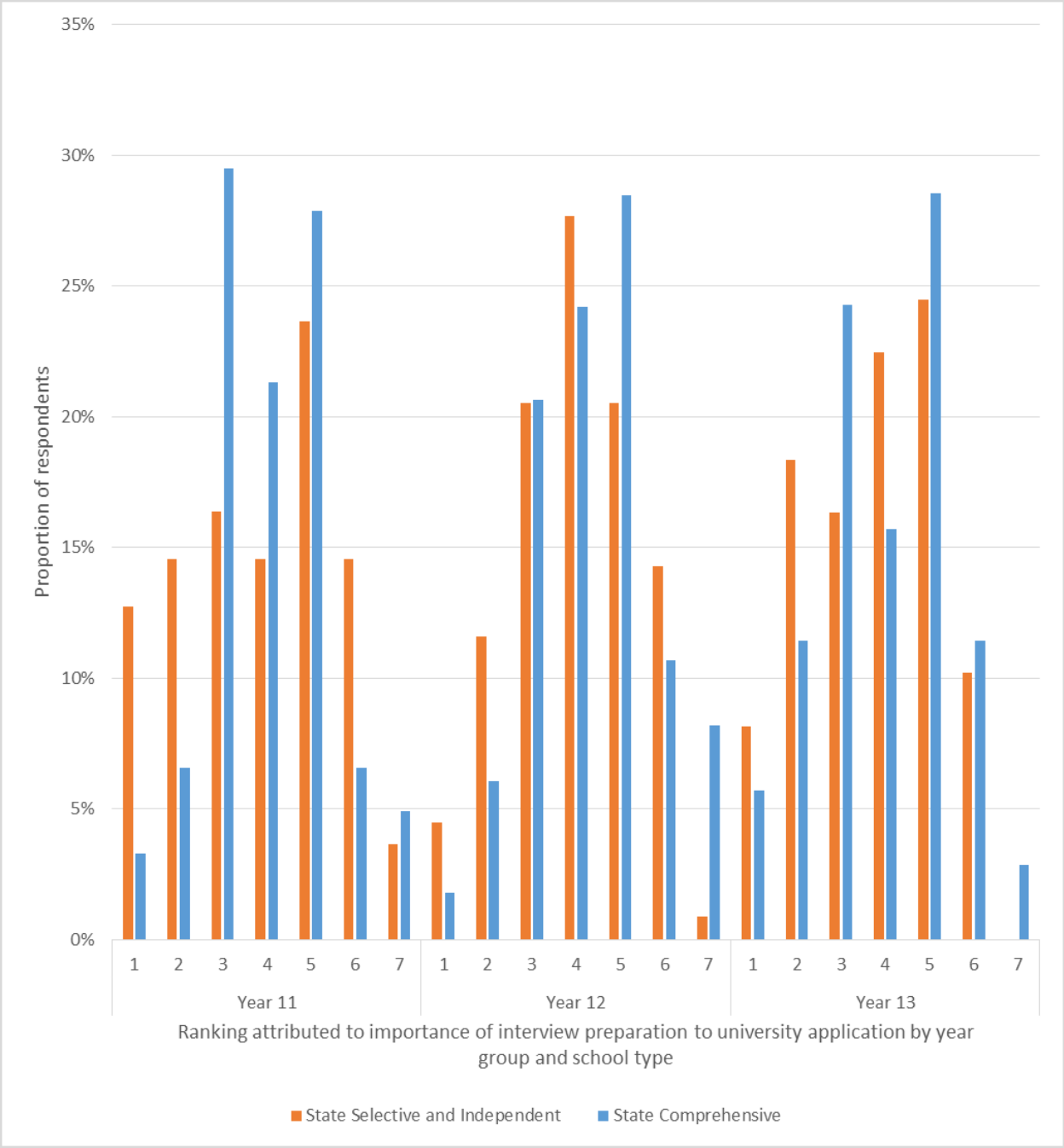


Figure B14: ***How important is interview preparation to the university application process? Rank 1-7***

Bar chart showing the percentage of responses within each category from Year 11, 12 and 13 respondents to the question *'How important is interview preparation (compared to the other options listed) to the university application process? Please rank between 1 and 7'* in the questionnaire where 1 = most important attribute and 7 = least important attribute. Blue bars depict responses from participants from the state comprehensive sector (Year 11, n = 61; Year 12, n = 281; Year 13, n = 70). Orange bars depict responses from participants from the state selective and independent sectors (Year 11, n = 55; Year 12, n = 112; Year 13, n = 49).

Figure B15

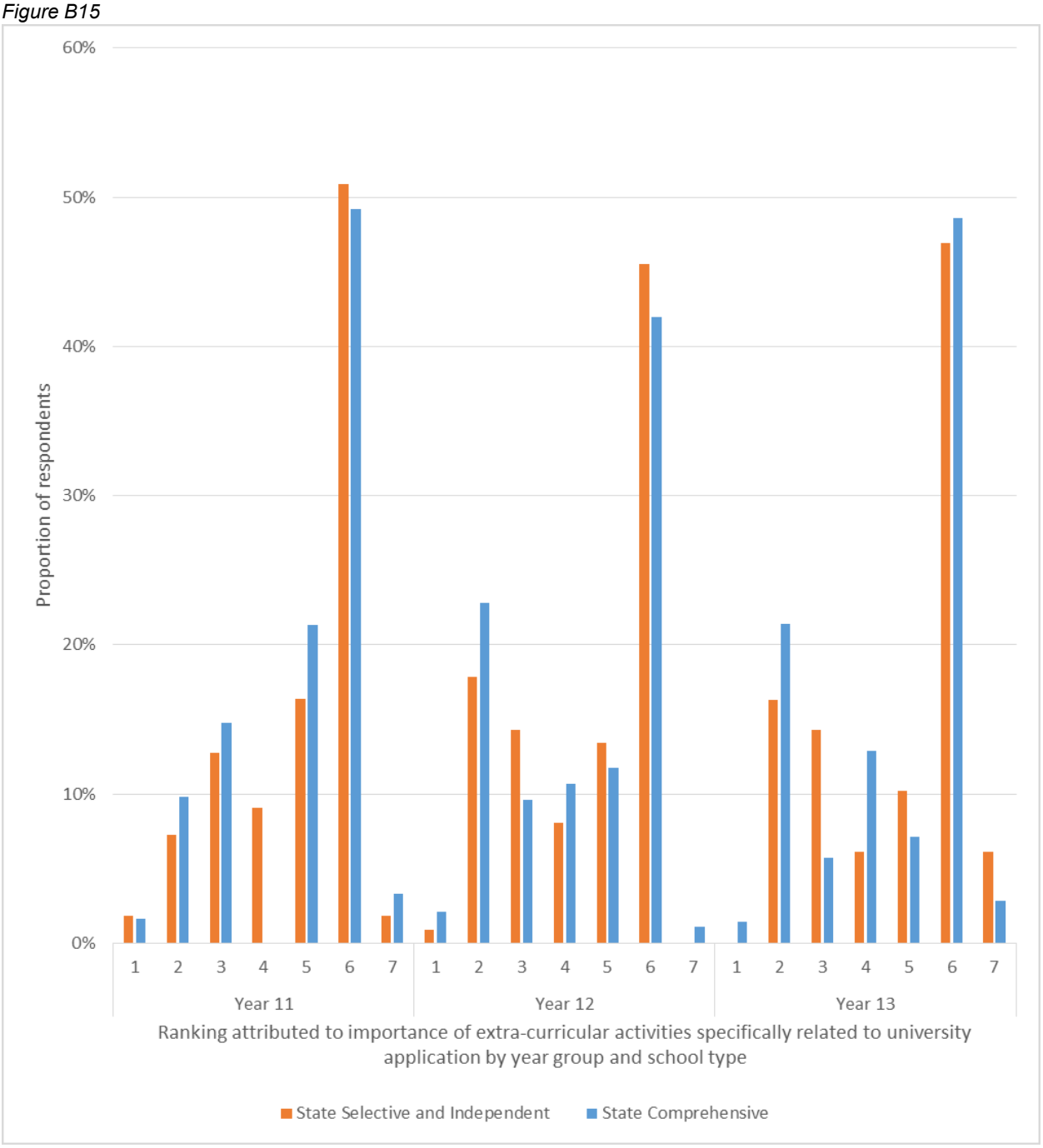


Figure B15: ***How important are extra-curricular activities specifically related to the university application process? Rank 1-7***

Bar chart showing the percentage of responses within each category from Year 11, 12 and 13 respondents to the question *'How important are extra-curricular activities specifically related to the university application process? (compared to the other options listed). Please rank between 1 and 7'* in the questionnaire where 1 = most important attribute and 7 = least important attribute. Blue bars depict responses from participants from the state comprehensive sector (Year 11, n = 61; Year 12, n = 281; Year 13, n = 70). Orange bars depict responses from participants from the state selective and independent sectors (Year 11, n = 55; Year 12, n = 112; Year 13, n = 49).

Figure B16

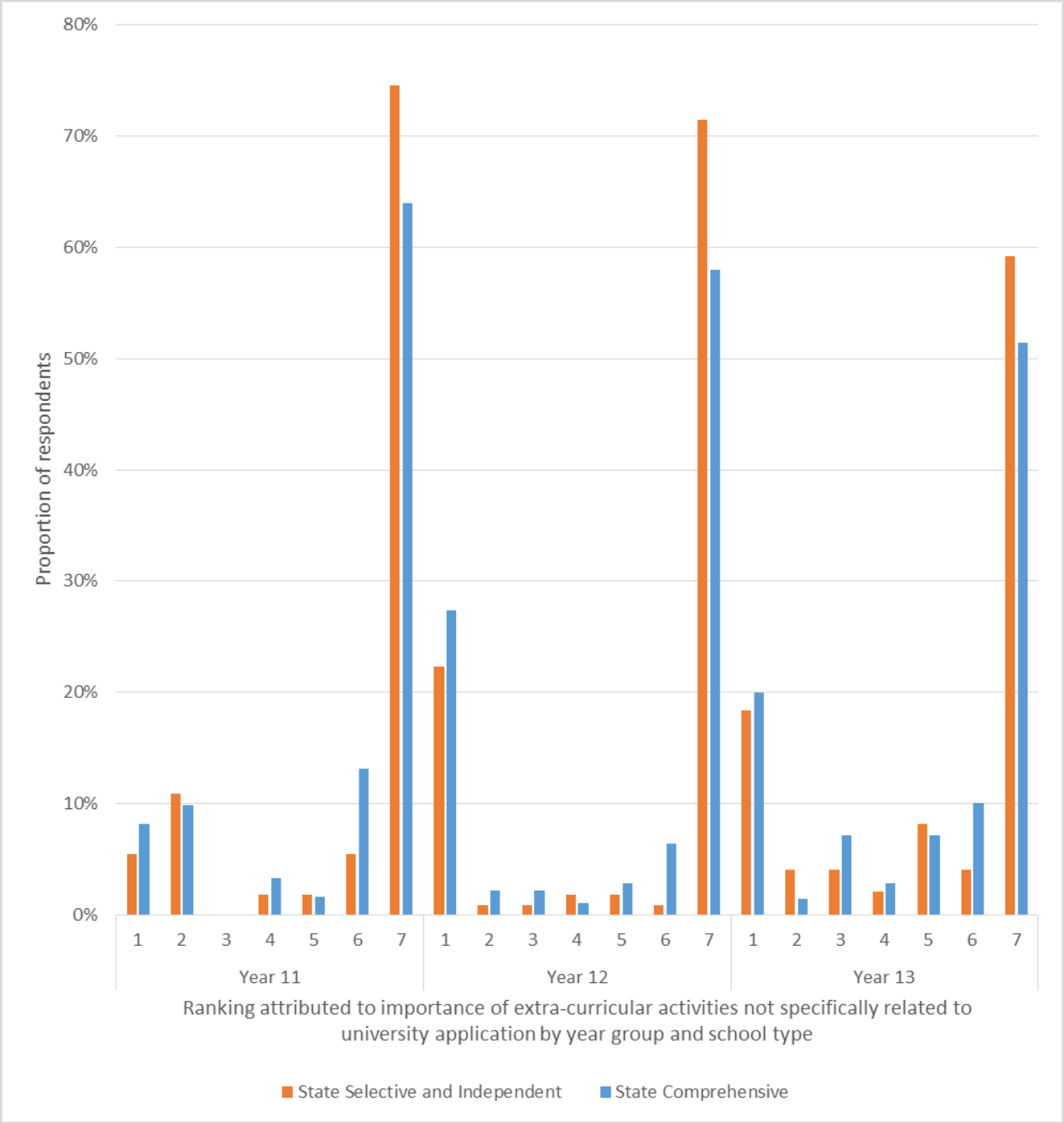


Figure B16: ***How important are extra-curricular activities not specifically related to the university application process? Rank 1-7***

Bar chart showing the percentage of responses within each category from Year 11, 12 and 13 respondents to the question *'How important are extra-curricular activities not specifically related to the university application process? (compared to the other options listed). Please rank between 1 and 7'* in the questionnaire where 1 = most important attribute and 7 = least important attribute. Blue bars depict responses from participants from the state comprehensive sector (Year 11, n = 61; Year 12, n = 281; Year 13, n = 70). Orange bars depict responses from participants from the state selective and independent sectors (Year 11, n = 55; Year 12, n = 112; Year 13, n = 49).

Figure B17

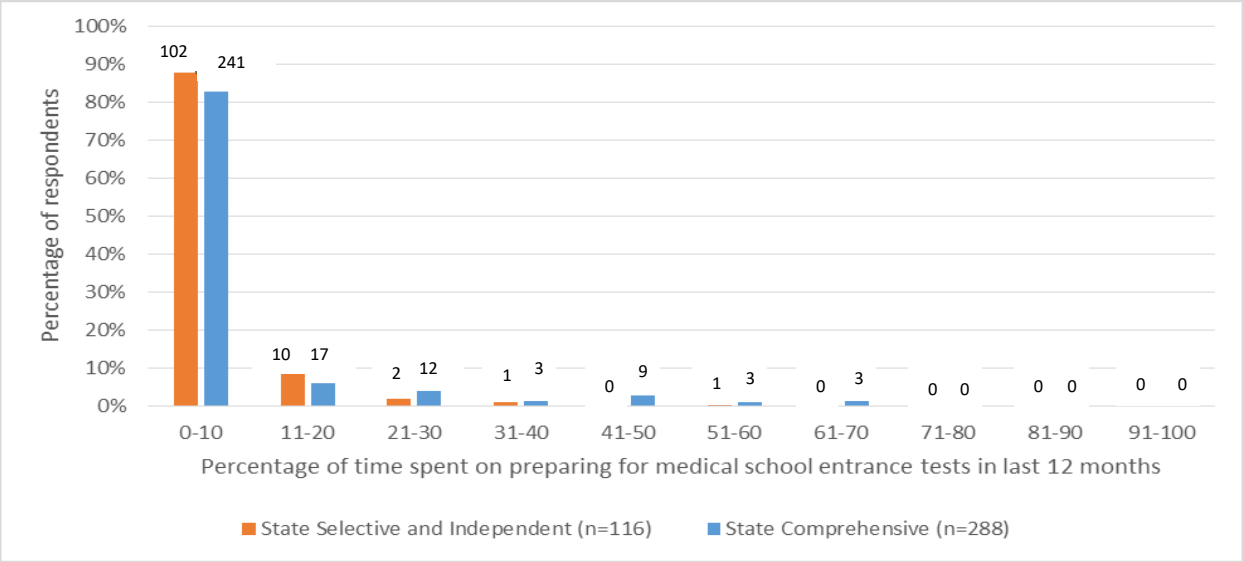


Figure B17: ***How much of your time over the past 12 months have you spent focusing on preparing for medical school entrance tests?***

Bar chart showing the percentage and number of responses within each category from Year 12 respondents to the question *'How much of your time over the past 12 months have you spent focusing on preparing for medical school entrance tests?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 288). Orange bars depict responses from participants from the state selective and independent sectors (n = 116).

Figure B18

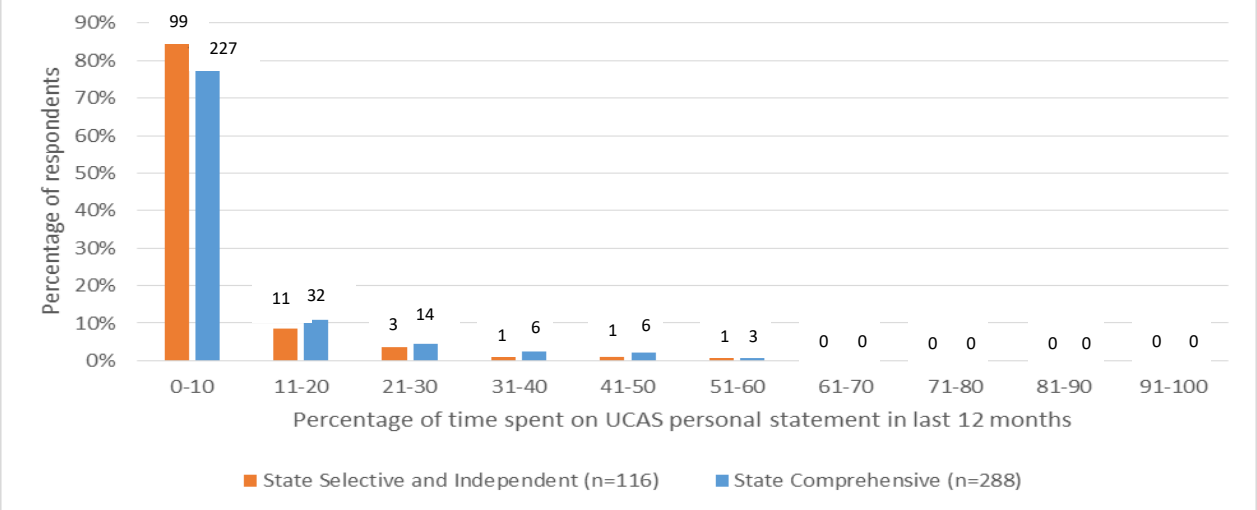


Figure B18: ***How much of your time over the past 12 months have you spent focusing on preparing a UCAS personal statement?***

Bar chart showing the percentage and number of responses within each category from Year 12 respondents to the question *'How much of your time over the past 12 months have you spent focusing on preparing a UCAS personal statement?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 288). Orange bars depict responses from participants from the state selective and independent sectors (n = 116).

Figure B19

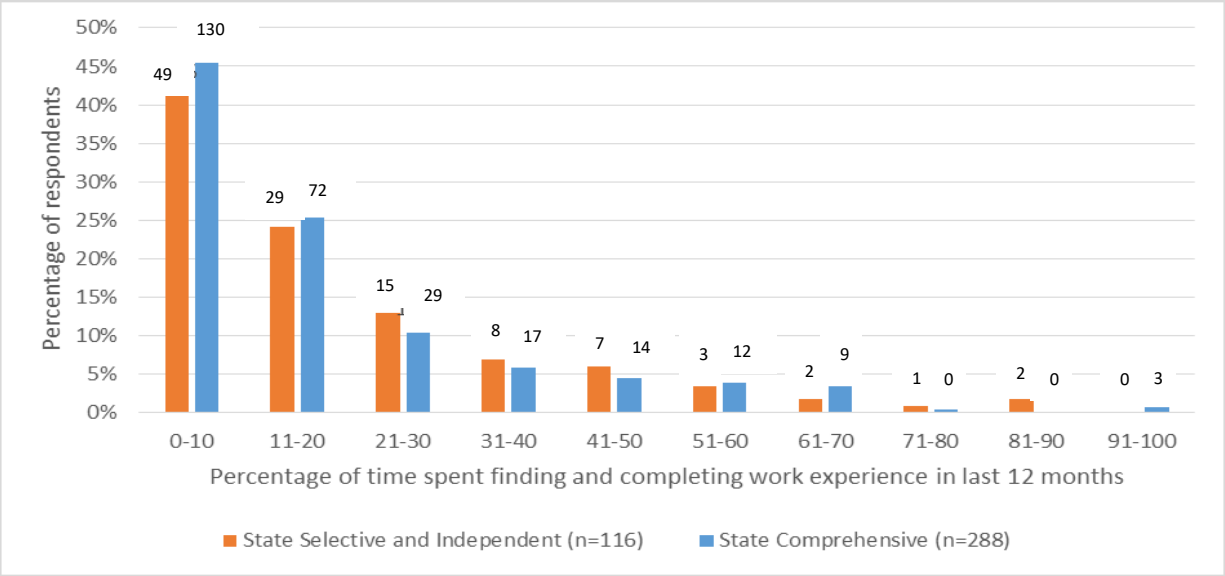


Figure B19: ***How much of your time over the past 12 months have you spent focusing on finding and completing work experience?***

Bar chart showing the percentage and number of responses within each category from Year 12 respondents to the question *'How much of your time over the past 12 months have you spent focusing on finding and completing work experience?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 288). Orange bars depict responses from participants from the state selective and independent sectors (n = 116).

Figure B20

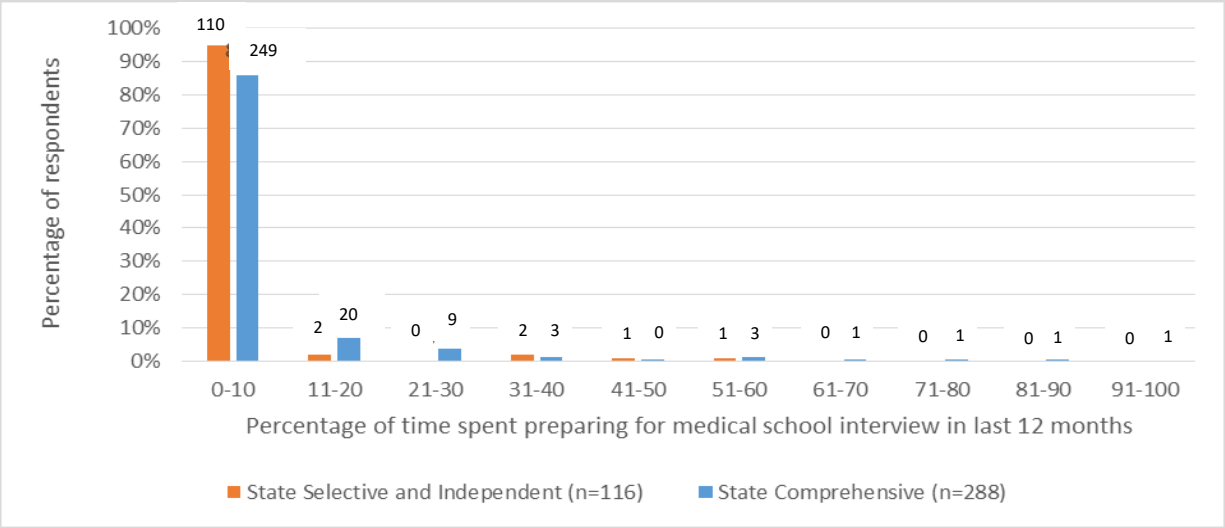


Figure B20: ***How much of your time over the past 12 months have you spent focusing on preparing for medical school interviews?***

Bar chart showing the percentage and number of responses within each category from Year 12 respondents to the question *'How much of your time over the past 12 months have you spent focusing on preparing for medical school interviews?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 288). Orange bars depict responses from participants from the state selective and independent sectors (n = 116).

Figure B21

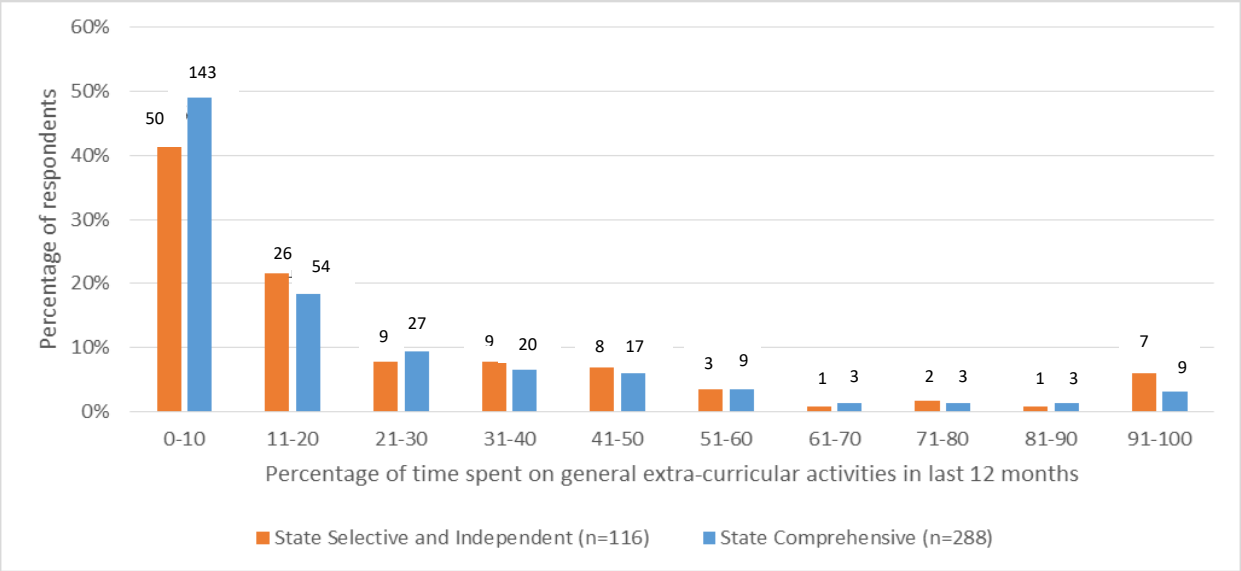


Figure B21: ***How much of your time over the past 12 months have you spent focusing on undertaking extra-curricular activities not specifically to support medical school applications?***

Bar chart showing the percentage and number of responses within each category from Year 12 respondents to the question *'How much of your time over the past 12 months have you spent focusing on undertaking extra-curricular activities not specifically to support medical school applications?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 288). Orange bars depict responses from participants from the state selective and independent sectors (n = 116).

Figure B22

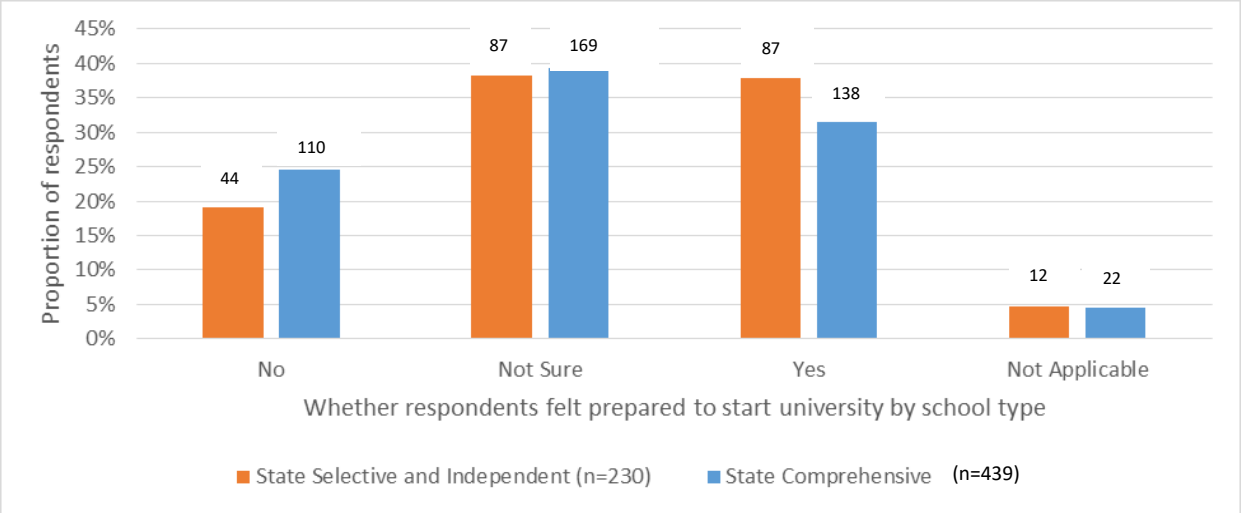


Figure B22: ***Do you feel prepared (with regards to information you have received) to start university?***

Bar chart showing the percentage and number of responses within each category from all respondents to the question '*Do you feel prepared (with regards to information you have received) to start university?'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 439). Orange bars depict responses from participants from the state selective and independent sectors (n = 230).

Figure B23

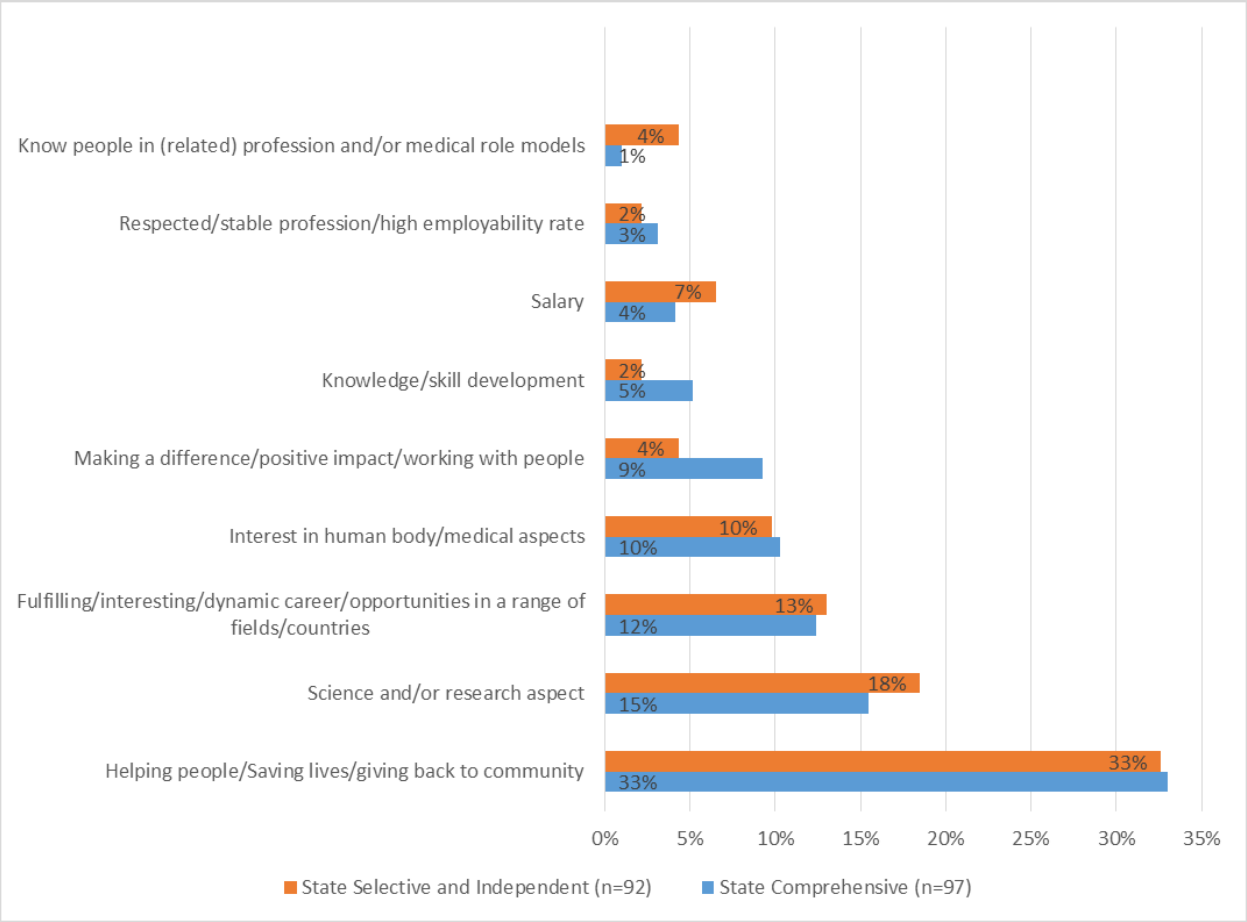


Figure B23: ***What attracts you towards studying medicine?***

Bar chart showing the percentage of responses within each category from Year 11 respondents to the question *'What attracts you towards studying medicine?'* for those who responded that they were definitely or potentially considering medicine as a future option in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 97). Orange bars depict responses from participants from the state selective and independent sectors (n = 92).

Figure B24

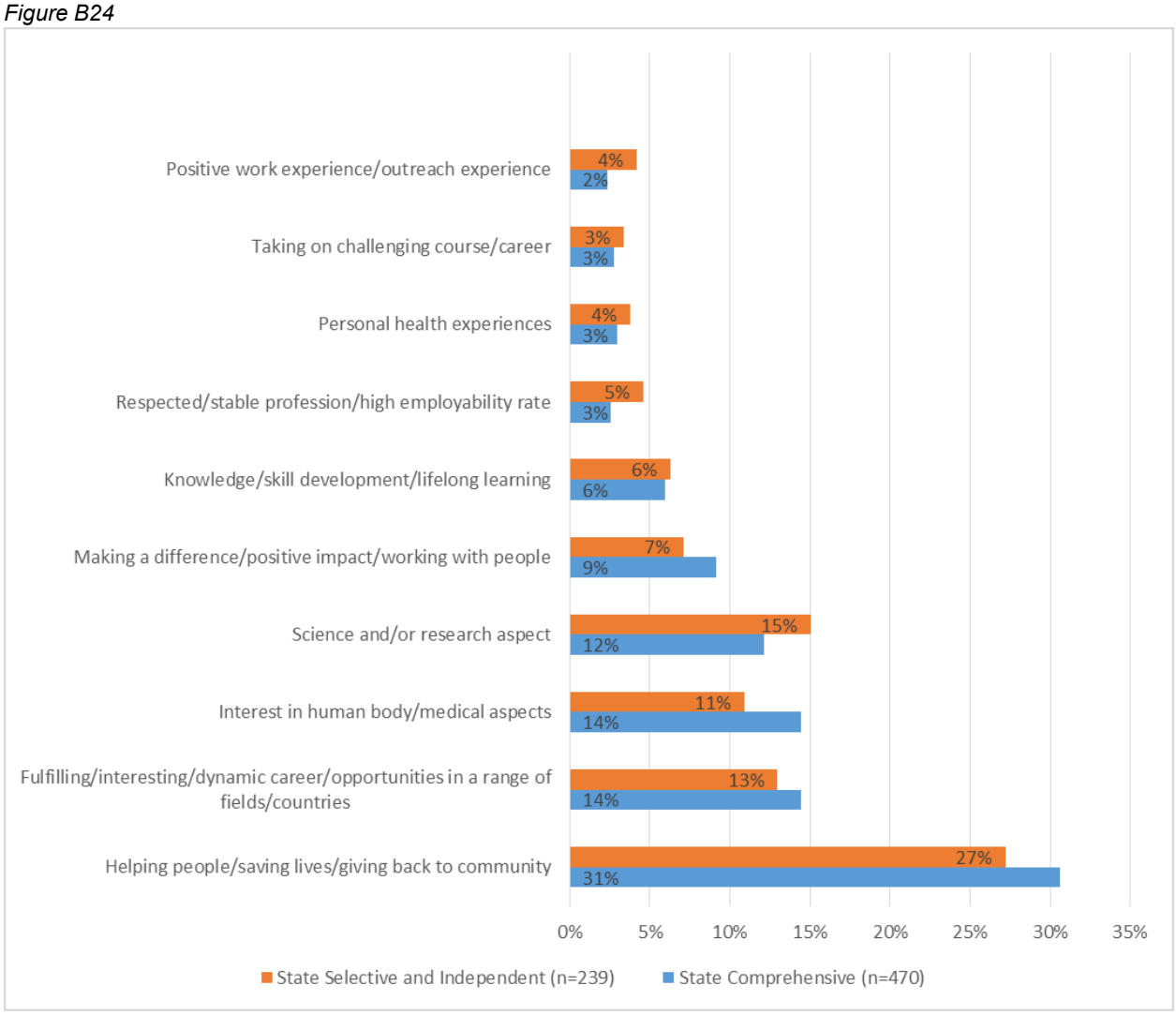


Figure B24: ***What attracts you towards studying medicine?***

Bar chart showing the percentage of responses within each category from Year 12 respondents to the question *'What attracts you towards studying medicine?'* for those who responded that they were definitely or potentially considering medicine as a future option in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 470). Orange bars depict responses from participants from the state selective and independent sectors (n = 239).

Figure B25

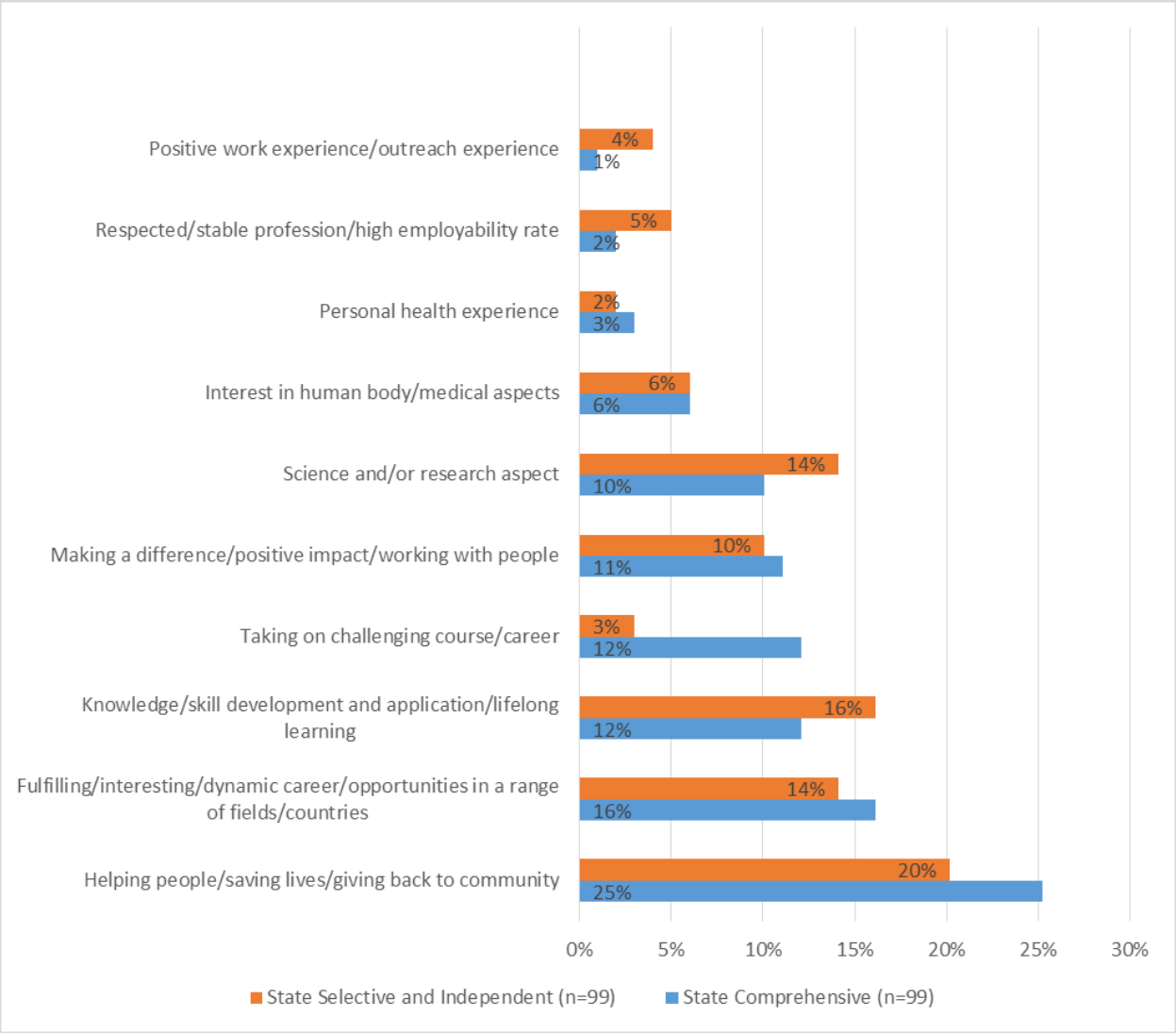


Figure B25: ***What attracts you towards studying medicine?***

Bar chart showing the percentage of responses within each category from Year 13 respondents to the question *'What attracts you towards studying medicine?'* for those who responded that they were definitely or potentially considering medicine as a future option in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (n = 99). Orange bars depict responses from participants from the state selective and independent sectors (n = 99).

Figure B26

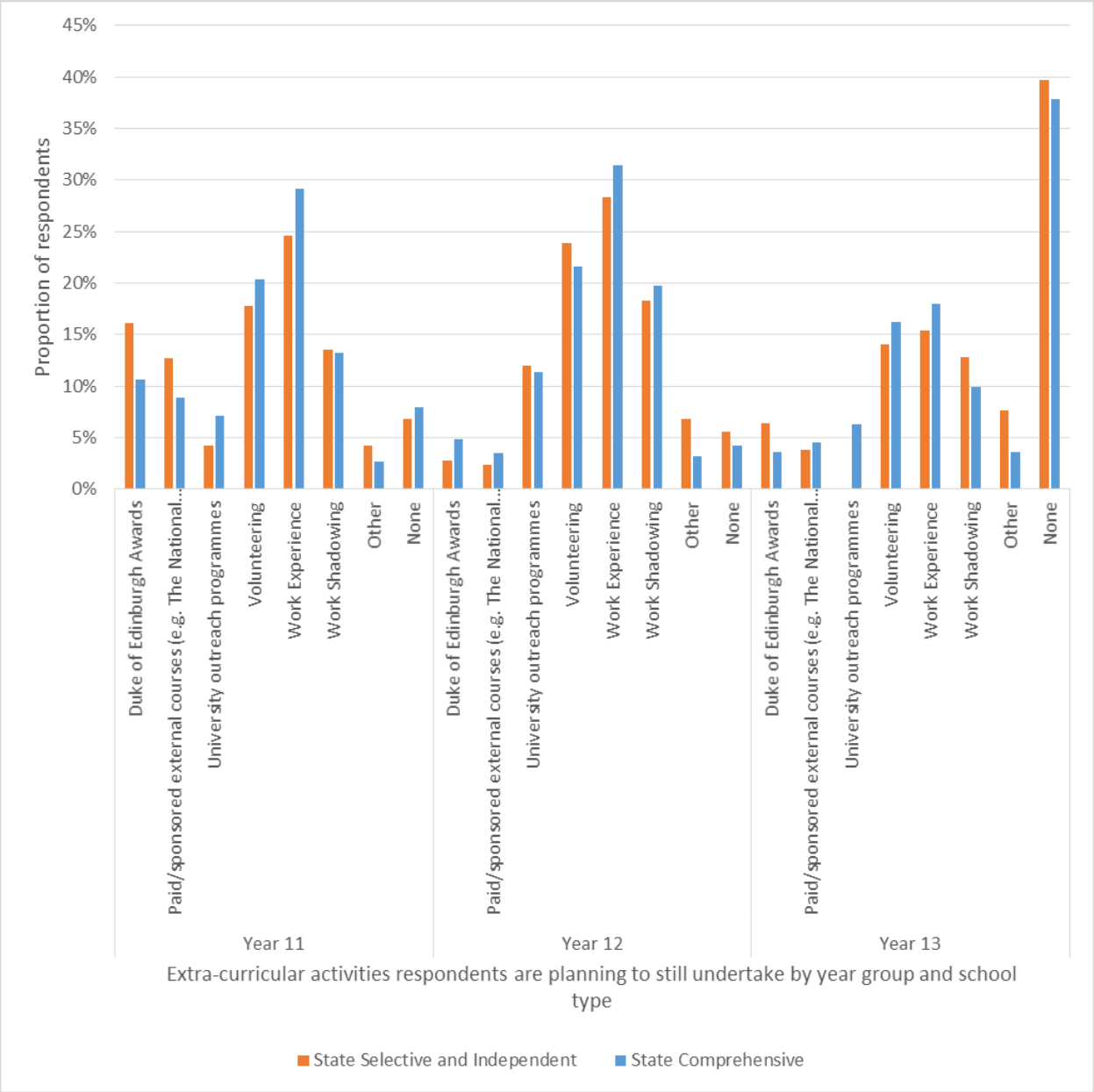


Figure B26: ***What extra-curricular activities do you plan to try and undertake?***

Bar chart showing the percentage of responses within each category from Year 11, 12 and 13 respondents to the question *'What extra-curricular activities do you plan to try and undertake? Please select all that apply.'* in the questionnaire. Blue bars depict responses from participants from the state comprehensive sector (Year 11, n = 113; Year 12, n = 633; Year 13, n = 111). Orange bars depict responses from participants from the state selective and independent sectors (Year 11, n = 118; Year 12, n = 244; Year 13, n = 78).

Appendix C

This appendix uses data made available from UKMED (UKMED, 2021). All headcount numbers are rounded to the nearest multiple of 5 and percentages based on fewer than 22.5 individuals are suppressed, in accordance with the UKMED requirement to use HESA Statistical Disclosure Controls.

Tables C1-C5 show the breakdown of number of offers received by applicants based on whether they class as WP or non-WP according to each WP metric. The tables show the total number of applications (i.e. one applicant will have up to four applications), and the proportion of applicants successfully receiving an offer, by type of medical school and overall.

Table C1 – The number and proportion of students to receive offers from all and each type of medical school according to whether they classify as WP or Non-WP according to IMD

	IMD WP				IMD Non-WP			
Number of offers received	**All medical schools**	**Non-testing medical schools**	**UCAT-testing medical schools**	**BMAT-testing medical school**	**All medical schools**	**Non-testing medical schools**	**UCAT-testing medical schools**	**BMAT-testing medical school**
0	109303	38246	32492	38565	235529	86356	60209	88964
1	9754	2212	5910	1632	41798	10496	24149	7153
2	2367	159	1907	301	12512	871	9976	1665
3	533	5	496	32	3378	21	3215	142
4	91	0	91	0	752	0	752	0
Total number of applicants receiving 1+ offer by type of medical school	**12745**	**2376**	**8404**	**1965**	**58440**	**11388**	**38092**	**8960**
Proportion of applicants receiving 1+ offer by type of medical school	**10.4%**	**5.9%**	**20.6%**	**4.9%**	**19.9%**	**11.7%**	**38.8%**	**9.2%**

Table C2 – The number and proportion of students to receive offers from all and each type of medical school according to whether they classify as WP or Non-WP according to POLAR

	POLAR WP				POLAR Non-WP			
Number of offers received	**All medical schools**	**Non-testing medical schools**	**UCAT-testing medical schools**	**BMAT-testing medical school**	**All medical schools**	**Non-testing medical schools**	**UCAT-testing medical schools**	**BMAT-testing medical school**
0	66749	23075	19223	24451	278158	100999	73138	104021
1	6833	1691	4156	966	44756	11074	25852	7830
2	1715	148	1390	177	13174	891	10490	1793
3	415	5	394	16	3499	21	3314	164
4	64	0	64	0	774	0	774	0
Total number of applicants receiving 1+ offer by type of medical school	**9027**	**1844**	**6004**	**1179**	**62203**	**11986**	**40430**	**9787**
Proportion of applicants receiving 1+ offer by type of medical school	**11.9%**	**7.4%**	**23.8%**	**4.6%**	**18.3%**	**10.6%**	**35.6%**	**8.6%**

Table C3 – The number and proportion of students to receive offers from all and each type of medical school according to whether they classify as WP or Non-WP according to IDACI

	IDACI WP				IDACI Non-WP			
Number of offers received	**All medical schools**	**Non-testing medical schools**	**UCAT-testing medical schools**	**BMAT-testing medical school**	**All medical schools**	**Non-testing medical schools**	**UCAT-testing medical schools**	**BMAT-testing medical school**
0	124773	42131	41507	41135	269938	96280	77297	96361
1	10978	2294	6644	2040	48442	11870	29144	7428
2	2537	158	1974	405	14593	988	11888	1717
3	484	0	443	41	4014	23	3838	153
4	50	0	50	0	917	0	917	0
Total number of applicants receiving 1+ offer by type of medical school	**14049**	**2452**	**9111**	**2486**	**67966**	**12881**	**45787**	**9298**
Proportion of applicants receiving 1+ offer by type of medical school	**10.1%**	**5.5%**	**18.0%**	**5.7%**	**20.1%**	**11.8%**	**37.2%**	**8.8%**

Table C4 – The number and proportion of students to receive offers from all and each type of medical school according to whether they classify as WP or Non-WP according to TUNDRA

	TUNDRA WP				TUNDRA Non-WP			
Number of offers received	**All medical schools**	**Non-testing medical schools**	**UCAT-testing medical schools**	**BMAT-testing medical school**	**All medical schools**	**Non-testing medical schools**	**UCAT-testing medical schools**	**BMAT-testing medical school**
0	63949	21739	20297	21913	350436	122873	105281	122282
1	7259	1731	4447	1081	54680	12959	32934	8787
2	1821	140	1492	189	16057	1050	12983	2024
3	424	6	400	18	4271	24	4063	184
4	70	0	70	0	943	0	943	0
Total number of applicants receiving 1+ offer by type of medical school	**9574**	**1877**	**6409**	**1288**	**75951**	**14033**	**50923**	**10995**
Proportion of applicants receiving 1+ offer by type of medical school	**13.00%**	**8.00%**	**24.00%**	**5.60%**	**17.80%**	**10.30%**	**32.60%**	**8.30%**

Table C5 – The number and proportion of students to receive offers from all and each type of medical school according to whether they classify as WP or Non-WP according to ACORN

	ACORN WP				ACORN Non-WP			
Number of offers received	**All medical schools**	**Non-testing medical schools**	**UCAT-testing medical schools**	**BMAT-testing medical school**	**All medical schools**	**Non-testing medical schools**	**UCAT-testing medical schools**	**BMAT-testing medical school**
0	97277	31628	32803	32846	259623	95362	66898	97363
1	8107	1598	5389	1120	44869	11317	25754	7798
2	1662	113	1335	214	13312	932	10596	1784
3	399	6	376	17	3537	21	3351	165
4	76	0	76	0	772	0	772	0
Total number of applicants receiving 1+ offer by type of medical school	**10244**	**1717**	**7176**	**1351**	**62490**	**12270**	**40473**	**9747**
Proportion of applicants receiving 1+ offer by type of medical school	**9.50%**	**5.20%**	**18.00%**	**4.00%**	**19.40%**	**11.40%**	**37.70%**	**9.10%**

Tables C6-C20 show the significance values, odds ratios and 95% confidence intervals of the likelihood of receiving one or more offer of a place at any type of medical school and also at each type of medical school (non-testing, UCAT-testing and BMAT-testing) individually, based on the following:

- WP status – where the reference category is non-WP according to each WP indicator;
- Gender – where male is used as the reference indicator;
- Ethnicity – where white is used as the reference indicator;
- WP status combined with gender to assess whether there is an interaction effect;
- WP status combined with ethnicity to assess whether there is an interaction effect.

These values were achieved using binary logistic regression in SPSS version 25 on the HIC portal.

Table C6 - Significance values, odds ratios and 95% confidence intervals of the likelihood of receiving one or more offers of a place at any type of medical school using IMD WP metrics and demographic splits

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by IMD	<0.0005	0.52	0.49	0.55
Gender (Female)	0.017	1.03	1.01	1.06
Ethnicity (non-white)	<0.0005	0.71	0.69	0.73
IMD WP and Female gender	0.594	0.51	0.91	1.06
IMD WP and non-white ethnicity	<0.0005	0.41	0.74	0.86

Dependent variable: Received 1+ offers in total across all types of medical school

Table C7 - Significance values, odds ratios and 95% confidence intervals of the likelihood of receiving one or more offers of a place at a UCAT-testing medical school using IMD WP metrics and demographic splits

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by IMD	<0.0005	0.54	0.50	0.57
Gender (Female)	<0.0005	1.05	1.03	1.08
Ethnicity (non-white)	<0.0005	0.65	0.63	0.67
IMD WP and Female gender	0.934	0.53	0.92	1.08
IMD WP and non-white ethnicity	<0.0005	0.44	0.76	0.90

Dependent variable: Received 1+ offers from UCAT-testing medical schools

Table C8 - Significance values, odds ratios and 95% confidence intervals of the likelihood of receiving one or more offers of a place at a BMAT-testing medical school using IMD WP metrics and demographic splits

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by IMD	<0.0005	0.62	0.55	0.69
Gender (Female)	<0.0005	0.73	0.70	0.76
Ethnicity (non-white)	<0.0005	1.59	1.51	1.66
IMD WP and Female gender	0.437	0.58	0.80	1.10
IMD WP and non-white ethnicity	<0.0005	0.36	0.51	0.67

Dependent variable: Received 1+ offers from BMAT-testing medical schools

Table C9 - Significance values, odds ratios and 95% confidence intervals of the likelihood of receiving one or more offers of a place at a non-testing medical school using IMD WP metrics and demographic splits

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by IMD	<0.0005	0.57	0.51	0.63
Gender (Female)	<0.0005	1.31	1.26	1.37
Ethnicity (non-white)	<0.0005	0.82	0.78	0.86
IMD WP and Female gender	0.846	0.56	0.86	1.13
IMD WP and non-white ethnicity	0.046	0.49	0.74	1.00

Dependent variable: Received 1+ offers from non-testing medical schools

Table C10 - Significance values, odds ratios and 95% confidence intervals of the likelihood of receiving one or more offers of a place at any type of medical school using POLAR WP metrics and demographic splits

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by POLAR	<0.0005	0.57	0.53	0.60
Gender (Female)	0.346	1.01	0.99	1.04
Ethnicity (non-white)	<0.0005	0.55	0.54	0.56
POLAR WP and Female gender	0.455	0.58	0.95	1.12
POLAR WP and non-white ethnicity	0.416	0.59	0.95	1.14

Dependent variable: Received 1+ offers in total across all types of medical school

Table C11 - Significance values, odds ratios and 95% confidence intervals of the likelihood of receiving one or more offers of a place at a UCAT-testing medical school using POLAR WP metrics and demographic splits

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by POLAR	<0.0005	0.60	0.56	0.64
Gender (Female)	0.008	1.04	1.01	1.06
Ethnicity (non-white)	<0.0005	0.52	0.50	0.53
POLAR WP and Female gender	0.763	0.61	0.93	1.10
POLAR WP and non-white ethnicity	0.725	0.61	0.92	1.12

Dependent variable: Received 1+ offers from UCAT-testing medical schools

Table C12 - Significance values, odds ratios and 95% confidence intervals of the likelihood of receiving one or more offers of a place at a BMAT-testing medical school using POLAR WP metrics and demographic splits

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by POLAR	<0.0005	0.57	0.50	0.64
Gender (Female)	<0.0005	0.72	0.69	0.76
Ethnicity (non-white)	<0.0005	1.28	1.22	1.34
POLAR WP and Female gender	0.483	0.61	0.90	1.26
POLAR WP and non-white ethnicity	0.004	0.44	0.65	0.92

Dependent variable: Received 1+ offers from BMAT-testing medical schools

Table C13 - Significance values, odds ratios and 95% confidence intervals of the likelihood of receiving one or more offers of a place at a non-testing medical school using POLAR WP metrics and demographic splits

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by POLAR	<0.0005	0.64	0.57	0.71
Gender (Female)	<0.0005	1.30	1.25	1.35
Ethnicity (non-white)	<0.0005	0.66	0.63	0.69
POLAR WP and Female gender	0.486	0.67	0.91	1.21
POLAR WP and non-white ethnicity	0.001	0.84	1.11	1.55

Dependent variable: Received 1+ offers from non-testing medical schools

Table C14 - Significance values, odds ratios and 95% confidence intervals of the likelihood of receiving one or more offers of a place at any type of medical school using IDACI WP metrics and demographic splits

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by IDACI	<0.0005	0.44	0.42	0.47
Gender (Female)	0.011	1.03	1.01	1.06
Ethnicity (non-white)	<0.0005	0.72	0.70	0.74
IDACI WP and Female gender	0.561	0.43	0.89	1.06
IDACI WP and non-white ethnicity	0.128	0.42	0.86	1.02

Dependent variable: Received 1+ offers in total across all types of medical school

Table C15 - Significance values, odds ratios and 95% confidence intervals of the likelihood of receiving one or more offers of a place at a UCAT-testing medical school using IDACI WP metrics and demographic splits

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by IDACI	<0.0005	0.44	0.41	0.47
Gender (Female)	<0.0005	1.05	1.02	1.08
Ethnicity (non-white)	<0.0005	0.66	0.64	0.68
IDACI WP and Female gender	0.567	0.45	0.94	1.13
IDACI WP and non-white ethnicity	0.902	0.44	0.92	1.10

Dependent variable: Received 1+ offers from UCAT-testing medical schools

Table C16 - Significance values, odds ratios and 95% confidence intervals of the likelihood of receiving one or more offers of a place at a BMAT-testing medical school using IDACI WP metrics and demographic splits

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by IDACI	<0.0005	0.81	0.72	0.91
Gender (Female)	<0.0005	0.73	0.70	0.76
Ethnicity (non-white)	<0.0005	1.61	1.54	1.69
IDACI WP and Female gender	0.393	0.75	0.79	1.10
IDACI WP and non-white ethnicity	<0.0005	0.43	0.47	0.62

Dependent variable: Received 1+ offers from BMAT-testing medical schools

Table C17 - Significance values, odds ratios and 95% confidence intervals of the likelihood of receiving one or more offers of a place at a non-testing medical school using IDACI WP metrics and demographic splits

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by IDACI	<0.0005	0.52	0.45	0.59
Gender (Female)	<0.0005	1.32	1.27	1.38
Ethnicity (non-white)	<0.0005	0.86	0.82	0.90
IDACI WP and Female gender	0.603	0.49	0.82	1.12
IDACI WP and non-white ethnicity	0.305	0.47	0.79	1.08

Dependent variable: Received 1+ offers from non-testing medical schools

Table C18 - Significance values, odds ratios and 95% confidence intervals of the likelihood of receiving one or more offers of a place at any type of medical school using TUNDRA WP metrics and demographic splits

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by TUNDRA	<0.0005	0.60	0.56	0.63
Gender (Female)	0.302	1.01	0.99	1.04
Ethnicity (non-white)	<0.0005	0.53	0.51	0.54
TUNDRA WP and Female gender	0.374	0.62	0.96	1.12
TUNDRA WP and non-white ethnicity	0.013	0.68	1.03	1.26

Dependent variable: Received 1+ offers in total across all types of medical school

Table C19 - Significance values, odds ratios and 95% confidence intervals of the likelihood of receiving one or more offers of a place at a UCAT-testing medical school using TUNDRA WP metrics and demographic splits

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by TUNDRA	<0.0005	0.59	0.56	0.63
Gender (Female)	0.025	1.03	1.00	1.06
Ethnicity (non-white)	<0.0005	0.50	0.49	0.51
TUNDRA WP and Female gender	0.058	0.65	1.00	1.18
TUNDRA WP and non-white ethnicity	0.007	0.69	1.04	1.30

Dependent variable: Received 1+ offers from UCAT-testing medical schools

Table C20 - Significance values, odds ratios and 95% confidence intervals of the likelihood of receiving one or more offers of a place at a BMAT-testing medical school using TUNDRA WP metrics and demographic splits

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by TUNDRA	<0.0005	0.77	0.69	0.87
Gender (Female)	<0.0005	0.73	0.70	0.76
Ethnicity (non-white)	<0.0005	1.22	1.17	1.28
TUNDRA WP and Female gender	0.186	0.69	0.76	1.05
TUNDRA WP and non-white ethnicity	0.001	0.57	0.62	0.89

Dependent variable: Received 1+ offers from BMAT-testing medical schools

Table C21 - Significance values, odds ratios and 95% confidence intervals of the likelihood of receiving one or more offers of a place at a non-testing medical school using TUNDRA WP metrics and demographic splits

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by TUNDRA	<0.0005	0.73	0.66	0.82
Gender (Female)	<0.0005	1.29	1.24	1.35
Ethnicity (non-white)	<0.0005	0.66	0.64	0.69
TUNDRA WP and Female gender	0.453	0.77	0.92	1.21
TUNDRA WP and non-white ethnicity	0.268	0.81	0.92	1.34

Dependent variable: Received 1+ offers from non-testing medical schools

Table C22 - Significance values, odds ratios and 95% confidence intervals of the likelihood of receiving one or more offers of a place at any type of medical school using ACORN WP metrics and demographic splits

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by ACORN	<0.0005	0.73	0.66	0.82
Gender (Female)	<0.0005	1.29	1.24	1.35
Ethnicity (non-white)	<0.0005	0.66	0.64	0.69
ACORN WP and Female gender	0.453	0.45	0.92	1.21
ACORN WP and non-white ethnicity	0.268	0.38	0.92	1.34

Dependent variable: Received 1+ offers in total across all types of medical school

Table C23 - Significance values, odds ratios and 95% confidence intervals of the likelihood of receiving one or more offers of a place at a UCAT-testing medical school using ACORN WP metrics and demographic splits

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by ACORN	<0.0005	0.50	0.46	0.53
Gender (Female)	0.001	1.04	1.02	1.07
Ethnicity (non-white)	<0.0005	0.60	0.58	0.62
ACORN WP and Female gender	0.891	0.49	0.91	1.09
ACORN WP and non-white ethnicity	<0.0005	0.42	0.77	0.93

Dependent variable: Received 1+ offers from UCAT-testing medical schools

Table C24 - Significance values, odds ratios and 95% confidence intervals of the likelihood of receiving one or more offers of a place at a BMAT-testing medical school using ACORN WP metrics and demographic splits

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by ACORN	<0.0005	0.50	0.44	0.58
Gender (Female)	<0.0005	0.73	0.70	0.77
Ethnicity (non-white)	<0.0005	1.45	1.39	1.52
ACORN WP and Female gender	0.046	0.41	0.67	1.00
ACORN WP and non-white ethnicity	<0.0005	0.32	0.54	0.76

Dependent variable: Received 1+ offers from BMAT-testing medical schools

Table C25 - Significance values, odds ratios and 95% confidence intervals of the likelihood of receiving one or more offers of a place at a non-testing medical school using ACORN WP metrics and demographic splits

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by ACORN	<0.0005	0.49	0.43	0.56
Gender (Female)	<0.0005	1.32	1.27	1.37
Ethnicity (non-white)	<0.0005	0.78	0.74	0.81
ACORN WP and Female gender	0.204	0.44	0.76	1.06
ACORN WP and non-white ethnicity	0.309	0.45	0.77	1.09

Dependent variable: Received 1+ offers from non-testing medical schools

Tables **C26-C40** show the significance values, odds ratios and 95% confidence intervals of the likelihood of a student taking up a place at each type of medical school (non-testing, UCAT-testing and BMAT-testing) individually, based on the following:

- WP status – where the reference category is non-WP according to each WP indicator;
- Gender – where male is used as the reference indicator;
- Ethnicity – where white is used as the reference indicator;
- WP status combined with gender to assess whether there is an interaction effect;
- WP status combined with ethnicity to assess whether there is an interaction effect.

These values were achieved using binary logistic regression in SPSS version 25 on the HIC portal.

Table C26 - Significance values, odds ratios and 95% confidence intervals of the likelihood of taking up a place at a non-testing medical school using IMD WP metrics and demographic splits

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by IMD	0.312	0.93	0.81	1.07
Gender (Female)	<0.0005	1.30	1.23	1.37
Ethnicity (non-white)	0.154	0.96	0.90	1.02
IMD WP and Female gender	0.946	0.94	0.84	1.21
IMD WP and non-white ethnicity	0.077	1.10	0.98	1.42

Dependent variable: student based in non-testing institution

Table C27 - Significance values, odds ratios and 95% confidence intervals of the likelihood of taking up a place at a UCAT-testing medical school using IMD WP metrics and demographic splits

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by IMD	0.011	1.14	1.03	1.27
Gender (Female)	<0.0005	1.11	1.07	1.16
Ethnicity (non-white)	<0.0005	0.60	0.57	0.62
IMD WP and Female gender	0.555	1.10	0.84	1.10
IMD WP and non-white ethnicity	0.027	1.33	1.02	1.33

Dependent variable: student based in UCAT-testing institution

Table C28 - Significance values, odds ratios and 95% confidence intervals of the likelihood of taking up a place at a BMAT-testing medical school using IMD WP metrics and demographic splits

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by IMD	0.073	0.89	0.78	1.01
Gender (Female)	<0.0005	0.68	0.65	0.71
Ethnicity (non-white)	<0.0005	2.18	2.07	2.29
IMD WP and Female gender	0.932	0.88	0.83	1.19
IMD WP and non-white ethnicity	<0.0005	0.63	0.60	0.83

Dependent variable: student based in BMAT-testing institution

Table C29 - Significance values, odds ratios and 95% confidence intervals of the likelihood of taking up a place at a non-testing medical school using POLAR WP metrics and demographic splits

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by POLAR	0.615	0.96	0.83	1.11
Gender (Female)	<0.0005	1.31	1.25	1.38
Ethnicity (non-white)	0.055	0.95	0.89	1.00
POLAR WP and Female gender	0.558	1.02	0.88	1.27
POLAR WP and non-white ethnicity	<0.0005	1.51	1.27	1.92

Dependent variable: student based in non-testing institution

Table C30 - Significance values, odds ratios and 95% confidence intervals of the likelihood of taking up a place at a UCAT-testing medical school using POLAR WP metrics and demographic splits

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by POLAR	0.001	1.20	1.08	1.33
Gender (Female)	<0.0005	1.10	1.06	1.14
Ethnicity (non-white)	<0.0005	0.62	0.60	0.65
POLAR WP and Female gender	0.151	1.08	0.78	1.04
POLAR WP and non-white ethnicity	0.685	1.16	0.83	1.13

Dependent variable: student based in UCAT-testing institution

Table C31 - Significance values, odds ratios and 95% confidence intervals of the likelihood of taking up a place at a BMAT-testing medical school using POLAR WP metrics and demographic splits

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by POLAR	0.002	0.80	0.70	0.92
Gender (Female)	<0.0005	0.69	0.66	0.72
Ethnicity (non-white)	<0.0005	2.08	1.98	2.18
POLAR WP and Female gender	0.937	0.81	0.83	1.22
POLAR WP and non-white ethnicity	0.003	0.60	0.62	0.91

Dependent variable: student based in BMAT-testing institution

Table C32 - Significance values, odds ratios and 95% confidence intervals of the likelihood of taking up a place at a non-testing medical school using IDACI WP metrics and demographic splits

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by IDACI	0.001	0.75	0.63	0.89
Gender (Female)	<0.0005	1.33	1.25	1.40
Ethnicity (non-white)	<0.0005	0.86	0.80	0.91
IDACI WP and Female gender	0.293	0.84	0.91	1.38
IDACI WP and non-white ethnicity	0.047	0.92	1.00	1.51

Dependent variable: student based in non-testing institution

Table C33 - Significance values, odds ratios and 95% confidence intervals of the likelihood of taking up a place at a UCAT-testing medical school using IDACI WP metrics and demographic splits

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by IDACI	0.104	1.10	0.98	1.23
Gender (Female)	<0.0005	1.09	1.04	1.13
Ethnicity (non-white)	<0.0005	0.71	0.68	0.75
IDACI WP and Female gender	0.860	1.08	0.85	1.15
IDACI WP and non-white ethnicity	0.010	1.32	1.05	1.38

Dependent variable: student based in UCAT-testing institution

Table C34 - Significance values, odds ratios and 95% confidence intervals of the likelihood of taking up a place at a BMAT-testing medical school using IDACI WP metrics and demographic splits

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by IDACI	0.160	1.10	0.96	1.25
Gender (Female)	<0.0005	0.69	0.66	0.73
Ethnicity (non-white)	<0.0005	1.82	1.72	1.92
IDACI WP and Female gender	0.544	1.04	0.78	1.14
IDACI WP and non-white ethnicity	<0.0005	0.72	0.55	0.76

Dependent variable: student based in BMAT-testing institution

Table C35 - Significance values, odds ratios and 95% confidence intervals of the likelihood of taking up a place at a non-testing medical school using TUNDRA WP metrics and demographic splits

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by TUNDRA	0.090	0.89	0.77	1.02
Gender (Female)	<0.0005	1.35	1.28	1.43
Ethnicity (non-white)	<0.0005	0.82	0.77	0.87
TUNDRA WP and Female gender	0.838	0.87	0.82	1.17
TUNDRA WP and non-white ethnicity	0.002	1.27	1.14	1.81

Dependent variable: student based in non-testing institution

Table C36 - Significance values, odds ratios and 95% confidence intervals of the likelihood of taking up a place at a UCAT-testing medical school using TUNDRA WP metrics and demographic splits

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by TUNDRA	<0.0005	1.25	1.13	1.39
Gender (Female)	0.001	1.07	1.03	1.12
Ethnicity (non-white)	<0.0005	0.79	0.75	0.82
TUNDRA WP and Female gender	0.345	1.34	0.93	1.23
TUNDRA WP and non-white ethnicity	0.695	1.21	0.82	1.15

Dependent variable: student based in UCAT-testing institution

Table C37 - Significance values, odds ratios and 95% confidence intervals of the likelihood of taking up a place at a BMAT-testing medical school using TUNDRA WP metrics and demographic splits

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by TUNDRA	0.002	0.81	0.72	0.92
Gender (Female)	<0.0005	0.71	0.67	0.75
Ethnicity (non-white)	<0.0005	1.64	1.56	1.72
TUNDRA WP and Female gender	0.030	0.67	0.68	0.98
TUNDRA WP and non-white ethnicity	0.028	0.65	0.65	0.98

Dependent variable: student based in BMAT-testing institution

Table C38 - Significance values, odds ratios and 95% confidence intervals of the likelihood of taking up a place at a non-testing medical school using ACORN WP metrics and demographic splits

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by ACORN	0.143	0.89	0.75	1.04
Gender (Female)	<0.0005	1.32	1.25	1.39
Ethnicity (non-white)	0.356	0.97	0.92	1.03
ACORN WP and Female gender	0.203	0.77	0.70	1.08
ACORN WP and non-white ethnicity	0.086	1.07	0.97	1.50

Dependent variable: student based in non-testing institution

Table C39 - Significance values, odds ratios and 95% confidence intervals of the likelihood of taking up a place at a UCAT-testing medical school using ACORN WP metrics and demographic splits

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by ACORN	<0.0005	1.25	1.11	1.40
Gender (Female)	<0.0005	1.09	1.05	1.13
Ethnicity (non-white)	<0.0005	0.61	0.58	0.63
ACORN WP and Female gender	0.080	1.44	0.98	1.36
ACORN WP and non-white ethnicity	0.108	1.42	0.97	1.33

Dependent variable: student based in UCAT-testing institution

Table C40 - Significance values, odds ratios and 95% confidence intervals of the likelihood of taking up a place at a BMAT-testing medical school using ACORN WP metrics and demographic splits

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by ACORN	0.005	0.81	0.70	0.94
Gender (Female)	<0.0005	0.69	0.66	0.73
Ethnicity (non-white)	<0.0005	2.12	2.01	2.22
ACORN WP and Female gender	0.057	0.65	0.64	1.01
ACORN WP and non-white ethnicity	0.001	0.59	0.60	0.88

Dependent variable: student based in BMAT-testing institution

Appendix D

This appendix uses data made available from UKMED (UKMED, 2021). All headcount numbers are rounded to the nearest multiple of 5 and percentages based on fewer than 22.5 individuals are suppressed, in accordance with the UKMED requirement to use HESA Statistical Disclosure Controls.

Table D1 shows the number and proportion of dropouts at all UK medical schools by the year that students commenced their studies.

Table D1 – The number and proportion of students that dropped out of UK medical schools within two years of commencing their studies according to year of entry

Year of Entry	Number of entrants per year	Number of students dropped out by end of their second year of study	Proportion of students dropped out by end of their second year of study
2007	6150	130	2.1%
2008	6825	140	2.1%
2009	6840	130	1.9%
2010	6850	130	1.9%
2011	6820	140	2.1%
2012	6570	120	1.8%
2013	6365	95	1.5%
2014	6500	95	1.5%
2015	6550	120	1.8%
2016	6700	130	1.9%
Totals	**66160**	**1230**	**1.9%**

Tables D2-D6 show the significance values, odds ratios and 95% confidence intervals of the likelihood of dropping out of medical school based on the following:

- WP status – where the reference category is non-WP according to each WP indicator;
- UCAT-testing institution – where the reference indicator is the student being in a non-testing institution;
- BMAT-testing institution – where the reference indicator is the student being in a non-testing institution;
- Gender – where male is used as the reference indicator;
- Ethnicity – where white is used as the reference indicator;
- WP status combined with HEI-type (UCAT-testing or BMAT-testing) to assess whether there is an interaction effect.

These values were achieved using binary logistic regression in SPSS version 25 on the HIC portal.

Table D2 - Significance values, odds ratios and 95% confidence intervals of the likelihood of students dropping out of medical school within 2 years of commencing their studies using IMD WP metrics, demographic splits and type of medical school

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by IMD	0.167	1.31	0.89	1.92
UCAT-testing institution (non-testing as reference variable)	0.144	0.86	0.70	1.05
BMAT-testing institution (non-testing as reference variable)	0.596	0.93	0.72	1.21
Gender (Female)	0.207	0.91	0.79	1.05
Ethnicity (non-white)	0.228	1.10	0.94	1.29
IMD WP and UCAT-testing institution	0.915	1.27	0.56	1.67
IMD WP and BMAT-testing institution	0.105	2.39	0.88	3.77

Dependent variable: dropout by end of year 2

Table D3 - Significance values, odds ratios and 95% confidence intervals of the likelihood of students dropping out of medical school within 2 years of commencing their studies using POLAR WP metrics, demographic splits and type of medical school

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by POLAR	0.992	1.00	0.63	1.58
UCAT-testing institution (non-testing as reference variable)	0.100	0.85	0.70	1.03
BMAT-testing institution (non-testing as reference variable)	0.554	0.93	0.73	1.18
Gender (Female)	0.013	0.84	0.74	0.96
Ethnicity (non-white)	0.015	1.19	1.04	1.38
POLAR WP and UCAT-testing institution	0.263	0.68	0.35	1.33
POLAR WP and BMAT-testing institution	0.389	1.48	0.60	3.66

Dependent variable: dropout by end of year 2

Table D4 - Significance values, odds ratios and 95% confidence intervals of the likelihood of students dropping out of medical school within 2 years of commencing their studies using IDACI WP metrics, demographic splits and type of medical school

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by IDACI	0.107	1.38	0.93	2.06
UCAT-testing institution (non-testing as reference variable)	0.185	0.86	0.69	1.08
BMAT-testing institution (non-testing as reference variable)	0.364	0.88	0.67	1.16
Gender (Female)	0.176	0.89	0.76	1.05
Ethnicity (non-white)	0.049	1.19	1.00	1.42
IDACI WP and UCAT-testing institution	0.706	1.55	0.62	2.02
IDACI WP and BMAT-testing institution	0.106	2.55	0.88	3.86

Dependent variable: dropout by end of year 2

Table D5 - Significance values, odds ratios and 95% confidence intervals of the likelihood of students dropping out of medical school within 2 years of commencing their studies using TUNDRA WP metrics, demographic splits and type of medical school

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by TUNDRA	0.733	1.09	0.67	1.76
UCAT-testing institution (non-testing as reference variable)	0.225	0.88	0.71	1.08
BMAT-testing institution (non-testing as reference variable)	0.455	0.91	0.71	1.17
Gender (Female)	0.030	0.85	0.73	0.98
Ethnicity (non-white)	0.008	1.23	1.06	1.44
TUNDRA WP and UCAT-testing institution	0.346	0.78	0.36	1.43
TUNDRA WP and BMAT-testing institution	0.990	1.08	0.38	2.60

Dependent variable: dropout by end of year 2

Table D6 - Significance values, odds ratios and 95% confidence intervals of the likelihood of students dropping out of medical school within 2 years of commencing their studies using ACORN WP metrics, demographic splits and type of medical school

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by ACORN	<0.0005	2.03	1.38	3.00
UCAT-testing institution (non-testing as reference variable)	0.498	0.93	0.76	1.14
BMAT-testing institution (non-testing as reference variable)	0.793	1.03	0.81	1.33
Gender (Female)	0.079	0.88	0.77	1.01
Ethnicity (non-white)	0.186	1.11	0.95	1.29
ACORN WP and UCAT-testing institution	0.064	1.17	0.32	1.03
ACORN WP and BMAT-testing institution	0.902	2.14	0.46	2.42

Dependent variable: dropout by end of year 2

Tables D7-D9 show the number and proportion of students that dropped out of medical school by the end of the second year of their studies by type of HEI and year of entry.

Table D7 – The number and proportion of students that dropped out of UCAT-testing institutions by the end of their second year of study by year of entry from 2007-2016

Year of Entry	Number of entrants per year to UCAT-testing institutions	Number of students dropped out of UCAT-testing institutions by the end of their second year of study	Proportion of students dropped out of UCAT-testing institutions by the end of their second year of study
2007	6015	115	1.9%
2008	5110	95	1.8%
2009	5120	95	1.9%
2010	5025	100	2.0%
2011	4885	80	1.7%
2012	4750	75	1.6%
2013	4465	75	1.7%
2014	4170	65	1.6%
2015	3820	80	2.1%
2016	3220	60	1.9%

Table D8 – The number and proportion of students that dropped out of BMAT-testing institutions by the end of their second year of study by year of entry from 2007-2016

Year of Entry	Number of entrants per year to BMAT-testing institutions	Number of students dropped out of BMAT-testing institutions by the end of their second year of study	Proportion of students dropped out of BMAT-testing institutions by the end of their second year of study
2007	1165	25	2.1%
2008	1060	25	2.4%
2009	1005	25	2.5%
2010	1070	25	2.4%
2011	1015	*	*
2012	1040	*	*
2013	1005	*	*
2014	1045	*	*
2015	1190	*	*
2016	1125	*	*

* Figure suppressed due to not meeting threshold for publication

Table D9 – The number and proportion of students that dropped out of non-testing institutions by the end of their second year of study by year of entry from 2007-2016

Year of Entry	Number of entrants per year to non-testing institutions	Number of students dropped out of non-testing institutions by the end of their second year of study	Proportion of students dropped out of non-testing institutions by the end of their second year of study
2007	1065	30	2.9%
2008	975	*	*
2009	925	*	*
2010	940	*	*
2011	885	*	*
2012	835	*	*
2013	865	*	*
2014	840	*	*
2015	805	*	*
2016	725	30	4.0%

* Figure suppressed due to not meeting threshold for publication

Tables D10-D12 show the number and proportion of students that that did not register for a PMQ number by type of HEI and year of entry.

Table D10 – The number and proportion of students from UCAT-testing institutions that did not register for a PMQ by year of entry from 2007-2013

Year of Entry	Number of students that completed their studies at UCAT-testing institutions by year of entry	Number of students that completed their studies at UCAT-testing institutions that have not registered for a PMQ number by year of entry	Proportion of students that completed their studies at UCAT-testing institutions that have not registered for a PMQ number by year of entry
2007	5995	385	6.4%
2008	5070	335	6.6%
2009	5030	330	6.5%
2010	4840	345	7.1%
2011	4500	300	6.7%
2012	4380	295	6.7%
2013	3140	225	7.2%

Table D11 – The number and proportion of students from BMAT-testing institutions that did not register for a PMQ by year of entry from 2007-2013

Year of Entry	Number of students that completed their studies at BMAT-testing institutions by year of entry	Number of students that completed their studies at BMAT-testing institutions that have not registered for a PMQ number by year of entry	Proportion of students that completed their studies at BMAT-testing institutions that have not registered for a PMQ number by year of entry
2007	1165	85	7.1%
2008	1060	75	7.1%
2009	1005	85	8.4%
2010	1060	80	7.5%
2011	990	85	8.6%
2012	1020	95	9.2%
2013	870	85	10.0%

Table D12 – The number and proportion of students from non-testing institutions that did not register for a PMQ by year of entry from 2007-2013

Year of Entry	Number of students that completed their studies at non-testing institutions by year of entry	Number of students that completed their studies at non-testing institutions that have not registered for a PMQ number by year of entry	Proportion of students that completed their studies at non-testing institutions that have not registered for a PMQ number by year of entry
2007	1065	80	7.6%
2008	975	65	6.5%
2009	910	55	6.1%
2010	930	50	5.5%
2011	865	50	6.0%
2012	815	45	5.4%
2013	700	45	6.1%

Tables D13-D17 show the significance values, odds ratios and 95% confidence intervals of the likelihood of not having a PMQ registration number 7+ years after starting their medical degree based on the following:

- WP status – where the reference category is non-WP according to each WP indicator;
- UCAT-testing institution – where the reference indicator is the student being in a non-testing institution;
- BMAT-testing institution – where the reference indicator is the student being in a non-testing institution;
- Gender – where male is used as the reference indicator;
- Ethnicity – where white is used as the reference indicator;
- WP status combined with HEI-type (UCAT-testing or BMAT-testing) to assess whether there is an interaction effect.

These values were achieved using binary logistic regression in SPSS version 25 on the HIC portal.

Table D13 - Significance values, odds ratios and 95% confidence intervals of the likelihood of students not registering for a PMQ number 7+ years after commencing their medical degree using IMD WP metrics, demographic splits and type of medical school

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by IMD	0.164	1.22	0.92	1.60
UCAT-testing institution (non-testing as reference variable)	0.749	1.02	0.89	1.17
BMAT-testing institution (non-testing as reference variable)	0.001	1.32	1.12	1.56
Gender (Female)	<0.0005	0.73	0.67	0.80
Ethnicity (non-white)	0.865	1.01	0.91	1.12
IMD WP and UCAT-testing institution	0.457	1.39	0.80	1.62
IMD WP and BMAT-testing institution	0.036	2.02	1.03	2.66

Dependent variable: PMQ registration number not recorded

Table D14 - Significance values, odds ratios and 95% confidence intervals of the likelihood of students not registering for a PMQ number 7+ years after commencing their medical degree using POLAR WP metrics, demographic splits and type of medical school

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by POLAR	0.428	1.13	0.83	1.54
UCAT-testing institution (non-testing as reference variable)	0.463	1.05	0.92	1.20
BMAT-testing institution (non-testing as reference variable)	<0.0005	1.34	1.15	1.57
Gender (Female)	<0.0005	0.70	0.64	0.76
Ethnicity (non-white)	0.049	1.10	1.00	1.20
POLAR WP and UCAT-testing institution	0.592	1.02	0.61	1.33
POLAR WP and BMAT-testing institution	0.423	1.43	0.71	2.24

Dependent variable: PMQ registration number not recorded

Table D15 - Significance values, odds ratios and 95% confidence intervals of the likelihood of students not registering for a PMQ number 7+ years after commencing their medical degree using IDACI WP metrics, demographic splits and type of medical school

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by IDACI	0.050	1.33	1.00	1.77
UCAT-testing institution (non-testing as reference variable)	0.839	0.98	0.85	1.14
BMAT-testing institution (non-testing as reference variable)	0.001	1.34	1.13	1.60
Gender (Female)	<0.0005	0.77	0.69	0.85
Ethnicity (non-white)	0.636	0.97	0.87	1.09
IDACI WP and UCAT-testing institution	0.604	1.48	0.75	1.64
IDACI WP and BMAT-testing institution	0.119	1.95	0.91	2.37

Dependent variable: PMQ registration number not recorded

Table D16 - Significance values, odds ratios and 95% confidence intervals of the likelihood of students not registering for a PMQ number 7+ years after commencing their medical degree using TUNDRA WP metrics, demographic splits and type of medical school

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by TUNDRA	0.551	1.11	0.79	1.54
UCAT-testing institution (non-testing as reference variable)	0.859	1.01	0.88	1.17
BMAT-testing institution (non-testing as reference variable)	0.001	1.31	1.11	1.54
Gender (Female)	<0.0005	0.73	0.66	0.80
Ethnicity (non-white)	0.038	1.11	1.01	1.23
TUNDRA WP and UCAT-testing institution	0.972	1.10	0.66	1.50
TUNDRA WP and BMAT-testing institution	0.150	1.63	0.87	2.49

Dependent variable: PMQ registration number not recorded

Table D17 - Significance values, odds ratios and 95% confidence intervals of the likelihood of students not registering for a PMQ number 7+ years after commencing their medical degree using ACORN WP metrics, demographic splits and type of medical school

Variable	P-Value	Odds Ratio	95% confidence interval Lower Bound	95% confidence interval Upper Bound
WP status as measured by ACORN	0.067	1.34	0.98	1.82
UCAT-testing institution (non-testing as reference variable)	0.726	1.02	0.90	1.17
BMAT-testing institution (non-testing as reference variable)	<0.0005	1.34	1.14	1.57
Gender (Female)	<0.0005	0.71	0.65	0.78
Ethnicity (non-white)	0.352	1.05	0.95	1.15
ACORN WP and UCAT-testing institution	0.353	1.60	0.82	1.76
ACORN WP and BMAT-testing institution	0.204	1.93	0.82	2.57

Dependent variable: PMQ registration number not recorded

Appendix E

This appendix uses data made available from UKMED (UKMED, 2021). All headcount numbers are rounded to the nearest multiple of 5 and percentages based on fewer than 22.5 individuals are suppressed, in accordance with the UKMED requirement to use HESA Statistical Disclosure Controls.

Table E1 – The proportion of records missing, by metric type/combinations, for Element One of the UKMED study in Chapter 3 of this thesis.

Metric/s missing	**Percentage**
IMD missing only	0%
IMD and POLAR missing	0%
IMD and IDACI missing	0%
IMD and TUNDRA missing	0%
IMD and ACORN missing	0%
IMD and POLAR and IDACI missing	0.19%
IMD and POLAR and TUNDRA missing	0%
IMD and POLAR and ACORN missing	0%
IMD and IDACI and TUNDRA missing	0%
IMD and IDACI and ACORN missing	0%
IMD and TUNDRA and ACORN missing	0%
POLAR missing only	0.03%
POLAR and IDACI missing	0%
POLAR and TUNDRA missing	0.01%
POLAR and ACORN missing	0%
POLAR and IDACI and TUNDRA missing	0.01%
POLAR and IDACI and ACORN missing	0%
POLAR and TUNDRA and ACORN missing	0%
IDACI missing only	0.92%
IDACI and TUNDRA missing	5.06%
IDACI and ACORN missing	0%
IDACI and TUNDRA and ACORN missing	0.01%
TUNDRA missing only	2.89%
TUNDRA and ACORN missing	0.01%
ACORN missing only	0.32%
POLAR and IDACI and TUNDRA and ACORN missing	0%
IMD and IDACI and TUNDRA and ACORN missing	0%
IMD and POLAR and TUNDRA and ACORN missing	0.02%
IMD and POLAR and IDACI and ACORN missing	0.04%
IMD and POLAR and IDACI and TUNDRA missing	0%
All missing	0.34%

Table E2 – The proportion of records missing per individual metric for Element One of the UKMED study in Chapter 3 of this thesis.

Metric missing	Percentage
IMD	0.59%
POLAR	0.63%
IDACI	6.57%
TUNDRA	8.34%
ACORN	0.75%

Table E3 – The proportion of records distributed across the IMD quintiles for records where at least one other metric is missing and for records where no other metric is missing for Element One of the UKMED study in Chapter 3 of this thesis.

IMD Quintile	Distribution of records with at least one other metric missing across each quintile	IMD Quintile	Distribution of records with no other metric missing across each quintile
1	9.7%	1	15.1%
2	11.7%	2	16.6%
3	17.0%	3	18.6%
4	24.2%	4	21.6%
5	37.5%	5	28.2%

Table E4 – The proportion of records distributed across the POLAR quintiles for records where at least one other metric is missing and for records where no other metric is missing for Element One of the UKMED study in Chapter 3 of this thesis.

POLAR Quintile	Distribution of records with at least one other metric missing across each quintile	POLAR Quintile	Distribution of records with no other metric missing across each quintile
1	4.5%	1	7.2%
2	8.3%	2	12.1%
3	13.6%	3	18.2%
4	21.4%	4	23.5%
5	52.2%	5	39.0%

Table E5 – The proportion of records distributed across the IDACI quintiles for records where at least one other metric is missing and for records where no other metric is missing for Element One of the UKMED study in Chapter 3 of this thesis.

IDACI Quintile	Distribution of records with at least one other metric missing across each quintile	IDACI Quintile	Distribution of records with no other metric missing across each quintile
1	15.7%	1	17.5%
2	11.2%	2	16.4%
3	12.3%	3	17.0%
4	18.7%	4	20.5%
5	42.1%	5	28.7%

Table E6 – The proportion of records distributed across the TUNDRA quintiles for records where at least one other metric is missing and for records where no other metric is missing for Element One of the UKMED study in Chapter 3 of this thesis.

TUNDRA Quintile	Distribution of records with at least one other metric missing across each quintile	TUNDRA Quintile	Distribution of records with no other metric missing across each quintile
1	8.4%	1	6.8%
2	7.2%	2	11%
3	12.7%	3	16.7%
4	39.8%	4	24.5%
5	31.9%	5	41.0%

Table E7 – The proportion of records distributed across the ACORN categories for records where at least one other metric is missing and for records where no other metric is missing for Element One of the UKMED study in Chapter 3 of this thesis.

ACORN Category	Distribution of records with at least one other metric missing across each quintile	ACORN Category	Distribution of records with no other metric missing across each quintile
1	46.1%	1	42%
2	8.1%	2	11.4%
3	27.0%	3	22.3%
4	12.0%	4	11.8%
5	5.4%	5	10.9%
6	1.5%	6	1.5%

Table E8 – The proportion of records missing, by metric type/combinations, for Elements Two and Three of the UKMED study in Chapters 3 and 4 of this thesis.

Metric/s missing	Percentage
IMD missing only	0%
IMD and POLAR missing	0%
IMD and IDACI missing	0%
IMD and TUNDRA missing	0%
IMD and ACORN missing	0%
IMD and POLAR and IDACI missing	0.30%
IMD and POLAR and TUNDRA missing	0%
IMD and POLAR and ACORN missing	0%
IMD and IDACI and TUNDRA missing	0%
IMD and IDACI and ACORN missing	0%
IMD and TUNDRA and ACORN missing	0%
POLAR missing only	0.05%
POLAR and IDACI missing	0%
POLAR and TUNDRA missing	0.10%
POLAR and ACORN missing	0%
POLAR and IDACI and TUNDRA missing	0.01%
POLAR and IDACI and ACORN missing	0%
POLAR and TUNDRA and ACORN missing	0%
IDACI missing only	0.52%
IDACI and TUNDRA missing	4.70%
IDACI and ACORN missing	0%
IDACI and TUNDRA and ACORN missing	0.01%
TUNDRA missing only	0.25%
TUNDRA and ACORN missing	0%
ACORN missing only	0.08%
POLAR and IDACI and TUNDRA and ACORN missing	0%
IMD and IDACI and TUNDRA and ACORN missing	0%
IMD and POLAR and TUNDRA and ACORN missing	0.43%
IMD and POLAR and IDACI and ACORN missing	0.21%
IMD and POLAR and IDACI and TUNDRA missing	0%
All missing	4.02%

Table E9 – The proportion of records missing per individual metric for Elements Two and Three of the UKMED study in Chapters 3 and 4 of this thesis.

Metric missing	Percentage
IMD	4.96%
POLAR	5.13%
IDACI	9.78%
TUNDRA	9.53%
ACORN	4.76%

Table E10 – The proportion of records distributed across the IMD quintiles for records where at least one other metric is missing and for records where no other metric is missing for Elements Two and Three of the UKMED study in Chapters 3 and 4 of this thesis.

IMD Quintile	Distribution of records with at least one other metric missing across each quintile	IMD Quintile	Distribution of records with no other metric missing across each quintile
1	4.5%	1	8.1%
2	9.6%	2	12.3%
3	16.2%	3	18.3%
4	23.9%	4	24.9%
5	45.7%	5	36.4%

Table E11 – The proportion of records distributed across the POLAR quintiles for records where at least one other metric is missing and for records where no other metric is missing for Elements Two and Three of the UKMED study in Chapters 3 and 4 of this thesis.

POLAR Quintile	Distribution of records with at least one other metric missing across each quintile	POLAR Quintile	Distribution of records with no other metric missing across each quintile
1	3.1%	1	4.9%
2	6.4%	2	9.1%
3	12.4%	3	15.3%
4	21.2%	4	23.7%
5	56.8%	5	47.1%

Table E12 – The proportion of records distributed across the IDACI quintiles for records where at least one other metric is missing and for records where no other metric is missing for Elements Two and Three of the UKMED study in Chapters 3 and 4 of this thesis.

IDACI Quintile	Distribution of records with at least one other metric missing across each quintile	IDACI Quintile	Distribution of records with no other metric missing across each quintile
1	8.8%	1	9.7%
2	9.9%	2	12.5%
3	12.9%	3	16.7%
4	19.4%	4	23.7%
5	48.9%	5	37.5%

Table E13 – The proportion of records distributed across the TUNDRA quintiles for records where at least one other metric is missing and for records where no other metric is missing for Elements Two and Three of the UKMED study in Chapters 3 and 4 of this thesis.

TUNDRA Quintile	Distribution of records with at least one other metric missing across each quintile	TUNDRA Quintile	Distribution of records with no other metric missing across each quintile
1	5.4%	1	4.9%
2	5.6%	2	9.4%
3	13.1%	3	16.0%
4	31.3%	4	23.8%
5	44.6%	5	45.9%

Table E14 – The proportion of records distributed across the ACORN categories for records where at least one other metric is missing and for records where no other metric is missing for Elements Two and Three of the UKMED study in Chapters 3 and 4 of this thesis.

ACORN Category	Distribution of records with at least one other metric missing across each quintile	ACORN Category	Distribution of records with no other metric missing across each quintile
1	52.7%	1	55.4%
2	7.8%	2	9.5%
3	25.3%	3	20.4%
4	9.9%	4	7.6%
5	2.2%	5	5.4%
6	2.1%	6	1.6%