Contraception 144 (2025) 110810

Contents lists available at ScienceDirect

Contraception

journal homepage: www.elsevier.com/locate/contraception

Original Research Article

Building the capacity of young professionals in family planning to publish: Insights from the ICFP2022 WHO scientific writing, mentoring and coaching course☆,☆☆

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ARTICLE INFO

Article history:
Received 10 September 2024
Received in revised form 3 January 2025
Accepted 3 January 2025

Keywords:
Capacity development
Contraception
Low- and middle-income countries
Medical education
Scientific writing

ABSTRACT

Objectives: We describe the development, delivery, and evaluation of a program to support junior professionals to publish their work in a scientific journal.
Study design: Conference delegates with an accepted abstract at the International Conference on Family Planning (ICFP), self-identifying as junior professionals and from a low- or middle-income country (LMIC) or working predominantly in LMIC settings, were eligible for the program. The program involved: (1) Four face-to-face workshops at ICFP from the 14th to 17th of November 2022; (2) mentoring meetings at ICFP; (3) a six-month post-conference online coaching program; and (4) post-conference learning webinars from December 2022 to May 2023. We used online surveys to assess the participants' reactions, learning, and behaviour changes to the workshops and the online coaching program. We present participants' self-reported progress towards achieving a scientific publication.
Results: Sixty-seven participants from 29 countries participated in the workshops, and 40 attended the post-conference program. Workshops were rated positively, though the in-conference mentoring program faced challenges, including low attendance. The post-conference program was highly rated, with most participants engaging well with coaching and the webinars. At the end of the six-month program, 31 (46%) participants reported some progress in manuscript writing, with five completed manuscripts submitted.
Conclusions: Scientific writing is a complex skill, and whilst our program had several positive elements, our participants faced many challenges completing their manuscripts within six months. The post-conference coaching and webinar program was rated highly, emphasising the need for ongoing support.
Implications: Future programs should address this and other difficulties we highlight.
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1. Introduction

Achieving a peer-reviewed publication as the first author is a milestone in any researcher or practitioner's career. Yet, the cycle of submitting articles to journals and being rejected is associated with negative emotions such as disappointment, sadness, shock, anger, devastation and vulnerability [1]. Presenting an abstract as a poster or oral presentation at a major scientific conference can be the first opportunity to share findings externally. A Cochrane review of 425 reports evaluating 307,028 conference abstracts demonstrated that only 37.3% were published as full-length articles within 10 years of the conference [2]. Factors associated with complete publication

☆ Conflicts of interest: The authors declare that the research was conducted without any commercial or financial relationships that could potentially create a conflict of interest.
☆☆ Funding: The ICFP supported this program through a Bill and Melinda Gates Award INV009212. The funder had no role in the design, delivery, evaluation, or presentation of results.
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https://doi.org/10.1016/j.contraception.2025.110810
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Textbox 1
Outline of the ICFP 2022 Scientific Writing, Mentoring and Coaching workshop content

Day 1: Why do I publish?
This session aimed to introduce the course and mentoring program and discuss why scientific writing skills and publishing are essential.
The intended learning outcomes were to:
- Understand the purpose and structure of the course
- Develop tips to start writing and move from a conference abstract to a full manuscript
- Learn tips for successful academic writing
- Understand authorship etiquette and rules

Day 2: The anatomy of a scientific paper.
This session aimed to help participants structure and write each section of the manuscript and convey their findings to other scientists and the general public.
The intended learning outcomes were to:
- Understand the general purpose/goal of writing the paper.
- Understand the structure for writing a scientific article and the purpose of each section of the manuscript.
- Be aware of reporting guidelines for different types of research and how to use them to your advantage.
- Develop strategies for approaching complex parts of the manuscript

Day 3: Getting your paper noticed by journal editors.
This session addressed issues around choosing the right journal, discussing what journal editors are looking for, and how to grab their attention.
The intended learning outcomes were:
- Understand the different journal types, costs, submission requirements, and how to locate the best journal for your article.
- Be able to write a concise cover letter
- Present work in a way that will appeal to journal editors
- Be aware of the peer review process, how to take criticism constructively, and how to respond to reviewers
- Understand what is meant by open access, including sharing your data sets
- Understand why publishing a paper in some journals costs and fee waiver policies

Day 4: The road to publication.
This session consolidated the key learnings from the other three sessions. In addition, the students learnt about the Gates Open Gateway, the post-conference coaching program, and how to get the most from it. They also gained tips on managing their workload and being productive writers and had an opportunity to give feedback on any comments the faculty had about the course.
The intended learning outcomes were to:
- Learn tips for how to "sell" your paper to a journal editor and reviewer, including compelling visualisations, tables, figures and video abstracts
- Discuss what makes a good peer review and how to respond to peer review
- Address any outstanding questions about the material covered in the previous sessions

ICFP, The International Conference on Family Planning.

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included randomised study designs, authors from a native English-speaking country, and the abstract presenting positive findings. Women and people from the Global South can face additional barriers to publication, hindering their academic career progression [3].

In family planning, many research projects focus on improving the uptake and acceptance of interventions within communities with unmet needs [4]. The '10/90' divide in medical research, first described in 2000, remains unchanged [5], meaning only 10% of high-impact medical publications are led by researchers from low- and middle-income countries (LMICs) (i.e. researchers representing 90% of humanity). Whilst the reasons for this persistent gap are complex, supporting the development of scientific writing skills of scientists and practitioners from LMICs will be essential to achieve equitable representation.

The objective of the International Conference on Family Planning (ICFP) 2022 World Health Organisation WHO Scientific Writing, Mentoring and Coaching course (hereafter 'the course') was to support a cohort of junior professionals with abstracts accepted at ICFP to write and submit a paper for peer review in a scientific journal within six months of the conference. The program was initiated by the conference organising team and the Department for Reproductive Health and Research at WHO, with support from the Geneva Foundation of Medical Education and Research and an academic obstetrician gynaecologist from the University of Oxford. We describe the development, evaluation and outcomes of this program.

2. Materials and methods

2.1. Context

The International Conference on Family Planning (ICFP) is the largest global scientific and advocacy conference on family planning. The event was held in person at Pattaya, Thailand, on November 14–17, 2022 and was attended by around 3600 delegates from 125 countries [6]. The conference scientific committee sought abstracts concerning any topic relevant to family planning and organised them into 16 tracks. There were more than 200 scientific sessions at the conference, including oral and flash sessions and six poster sessions across 16 tracks, covering a wide range of research, program, and advocacy topics.

2.2. Participants

We invited conference delegates who were authors on an accepted abstract to ICFP and self-identified as either an early career researcher, undergraduate or graduate student or a practitioner with limited peer-reviewed publications and who were from a LMIC background or working primarily in an LMIC setting to attend the course (Supplementary File 1). Upon the conference scientific committee's acceptance of an abstract, a course team member emailed the corresponding author with information about the program. We accepted registrations on a first-come-first-served basis up to a maximum of 70 participants.

2.3. Development of the workshop content

An international steering group comprising experts in women's health research and teaching (JEH, RI), WHO family planning scientists (RK, JK), conference organising and scientific committee members (KW, JCR) and a youth representative (JF) met regularly in the months leading up to ICFP to design the course objectives and develop the in-conference program session themes and content. This was a four-hour workshop split across the four days of the conference. Workshop one was held in the afternoon of the first day of the conference, with workshops two, three and four commencing at 7:30 AM for the remaining conference days. The in-conference

workshop's objective was to provide participants with an overview of scientific writing and to hear from experts from around the world about what makes a manuscript more likely to be accepted for publication and the most common reasons for rejection. The format for each workshop session was a series of short lectures followed by an expert panel discussion and a question-and-answer session (Textbox 1).

2.4. The mentoring program

During the conference, we established an informal mentoring program, linking two to five participants with an experienced mentor. Mentors were self-nominated from senior conference faculty and delegates. The objective of the conference mentoring program was to provide participants with one-on-one support as they began conceptualising how they would transform their conference abstract into a full journal article.

2.5. The coaching program

After the conference, a six-month coaching program was established to provide participants with ongoing support and someone to discuss challenges with as they progress from the conference abstract to their full manuscript. The coaches were different from the conference mentors. The coaches had completed training as academic coaches but did not attend the conference. We selected coaches from academia, large non-government organisations, government agencies and practitioners who had previously volunteered as academic coaches for the Geneva Foundation for Medical Education and Research (gfmer.ch). The coaches had an established publishing record. Where possible, we matched participants and coaches by country or region of origin. We provided all coaching remotely.

2.6. Post-conference webinars

Two post-conference webinars were conducted three and five months after ICFP. The purpose of the webinars was to remind participants about the course objectives and reiterate the importance of publication. We also used the webinars to encourage 'experience sharing' by participants who have submitted or published their manuscripts. The webinars were held at a time of day when most participants could attend. The webinar was recorded for those in other time zones. For each webinar, up to four participants or coaches were invited to share their experiences with writing and publishing with the rest of the group with time for discussion.

2.7. Course evaluation

The course evaluation was guided by Kirkpatrick's framework, which comprises four levels of training evaluation: reaction, learning, behaviour and results [7]. The evaluation used a mixed methods approach to capture learnings and outputs from the program. Our program's primary aim was to support participants in submitting a full manuscript on a family planning topic to a peer-reviewed scientific journal within six months after the conference. We defined this as the intended result, as per Kirkpatrick's framework. We captured reactions and learning during the program through online assessments. We sought evidence of behaviour change in writing habits through an online survey asking participants to self-assess their writing progress. We supplemented this with insights from the participant's coach on individual progress. We designed the evaluation to capture feedback on the individual parts of the program (workshops, mentoring, coaching, webinars). Our objective was to determine which elements of the program worked (or did not work), for whom, and why.

Reactions and learnings from the conference workshops and conference mentoring program were assessed using online questionnaires distributed during the conference and sent to participants after the conference, with space for free-text comments and feedback. Participants and mentors were encouraged to complete the questionnaires. Responses were expressed on Likert scales, with thematic analysis of free-text comments.

The post-conference program was assessed at the midpoint (three months) and endpoint (six months) (Supplementary Files 2 and 3). The midpoint assessment was performed through an online questionnaire sent to the coaches and participants, with two follow-up email reminders after the initial email. We used the questionnaire to ask participants to rate their progress (or that of their participants in the case of coaches) in submitting their manuscripts to a journal. We held an open discussion with the coaches to discuss these responses and facilitate reflections on the engagement of participants with the program, the barriers some students had experienced in engaging with writing behaviours, and suggestions to improve engagement for future programs.

At the end of the course, we determined each participant's progress in submitting a manuscript for publication: no progress, manuscript writing commenced (below average progress, average progress), manuscript near completion (good progress, excellent progress), and manuscript submitted (manuscript under review or accepted for publication). Participants self-reported their progress through surveys sent by email, with up to three follow-up emails in case of non-response. Our team verified each reported submission by checking with the journal.

We conducted this course as a service improvement program, and thus, it was exempt from institutional ethics review. We obtained individual electronic and written consent for participation in the course, with permission for data to be used for evaluation purposes obtained during course registration.

3. Results

3.1. Participants

Sixty-seven junior scientists participated in the program (Table 1). Of these, 40 went on to participate in the post-conference coaching program, with endpoint data available on the status of manuscript preparation and submission. Formal feedback on the course was available for 26 participants after the conference workshops and 20 following the coaching program. No data were available on the reasons and characteristics of participants who did not complete the feedback questionnaires.

Table 1
Characteristics of the participants attending the ICFP2022 WHO scientific writing, mentoring and coaching course

Description		No. of participants (%)
Region		
	African	37 (55%)
	South-East Asian	19 (28)
	Americas	8 (12)
	European	2 (3)
	Western Pacific	1 (1)
Gender		
	Female	38 (57)
	Male	29 (43)
Number of years working/studying family planning		
	0–3 y	17 (25)
	10 or more years	8 (12)
	4–6 y	24 (36)
	7–10 y	18 (27)
Total		67 (100)

ICFP, The International Conference on Family Planning.

The participants came from 29 countries representing all WHO regions: 37 from Africa, 19 from the South/Southeast Asia Region, eight from the Americas, two from Europe, and one from the Western Pacific. Two-thirds of participants reported six years or less of field experience, and just over half were female, 38 (57%). Their preferred languages for publication were English 55 (81%), French eight (12%), or Spanish/other four (6%) (Table 1).

Of the 67 participants, 40 (58%) actively participated in the post-conference coaching and webinar programs after the conference. Reasons for dropping out included busy schedules or the fact that they already had a university mentor to support their writing.

3.2. The conference workshop program

Of the 67 participants, 26 (39%) responded to the end-of-conference survey, and 15 (58%) reported attending all four sessions. In-person attendance at the workshops ranged from 30 to 100 participants. Discussions with participants highlighted that the timing of the workshops (7:30 AM for workshops two, three and four) was a contributing factor to their non-attendance. Three-quarters of respondents felt the course was 'definitely worth their time', with the remainder indicating it was 'partially worth their time'. The average overall course satisfaction was 7.95 out of 10. One participant felt their accommodation for the course in French was not met (the course teaching medium was English).

In-conference mentoring was rated lower, with about half of the respondents responding to the questionnaire having met with their mentor at least once during the conference. Overall satisfaction with the mentoring program was rated at 6.15 out of 10.

The strengths of the course highlighted by participants included the opportunity to network and connect with other researchers, ask experts, and get expert responses. Participants expressed that the conference's online interactive question platform (Slido) added value to the workshop experience. Respondents also felt the course content was applicable and easy to understand, and they appreciated hearing insights from faculty members selected from many different countries. Participants valued the various perspectives of journal editors, reviewers and writers.

Workshop participants highlighted limitations, including the timing of sessions in the early morning and the need for each workshop session to be extended. They also raised the difficulty of contacting and meeting with mentors in the busy conference schedule.

3.3. Feedback from the coaching program

Twenty participants (50% of those who participated in the coaching program) completed the online feedback survey (Table 2).

Table 2
Participants' feedback on the coaching component of the ICFP2022 WHO scientific writing, mentoring and coaching course

Description	Number of participants n = 20 (%)
Did you find the helpful coaching?	
Yes	17 (85%)
No	0 (0)
Somewhat	3 (15)
0	1 (5)
1	4 (20)
2	15 (17)
Yes	19 (95)
No	0 (0)
Somewhat	1 (5)
Yes	16 (80)
No	1 (5)
Does not apply	3 (25)

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Among these, 14 (70%) reported having contact with their coach between one and three times, while five (25%) reported contacting their coach four times or more. Only one participant indicated no contact at all. All coaches and 15 participants (75%) attended at least one webinar.

Seventeen participants (85%) expressed that they found the coaching program useful, and 19 (95%) participants and 100% of the coaches reported that they felt the webinars were beneficial. Additionally, of those who responded to the survey, 16 participants (80%) stated that they were motivated to complete their manuscript and submit it for publication, even if they had not done so by the end of the course. (See Table 3).

Text comments demonstrated that participants appreciated the coaching support, webinars, and networking opportunities. Some participants also highlighted challenges such as difficulty accessing data due to organisation restrictions or change of organisation, difficulties accessing collaborators, or the time limit for this program, which they felt was short.

3.4. Progress in journal article writing and submission

At the end of the six-month coaching period, 31 (46%) participants made some progress in writing their manuscripts. However, the number of submitted manuscripts was low, with only five participants reaching our initial objective. Of these participants, one manuscript had been published, two manuscripts were accepted for publication, and two manuscripts had been rejected and were being resubmitted to other journals. A further 26 manuscripts were in different stages of development, ranging from limited to excellent progress, whilst nine participants had not made progress towards writing their articles. (Table 3).

3.5. Key learnings

Several key learnings emerged from the three components of the course (Textbox 2).

4. Discussion

We present a multi-component course to help junior professionals from LMICs convert their conference abstracts into a journal publication. Our original aim was for most participants to submit their manuscripts to a peer-reviewed journal within six months of the conference; however, only five out of 67 participants achieved this. We do not believe this course was a failure. Our program highlighted many challenges in writing manuscripts, with time constraints being the most significant. For most participants, six months was too short to achieve substantial progress. In the six weeks following the end of the course, an additional seven manuscripts were submitted for publication. As of the time of writing, three more manuscripts have been accepted for publication or published.

Most other published reports of scientific writing programs do not report the number of publications as an endpoint but rather only satisfaction and learning outcomes [8,9]. Using the endpoint of publication better reflects the challenges junior researchers and practitioners face in this field.

Although scientific writing is a skill that takes years to master, writing and publication interventions can be effective [10]. Elements of successful courses are those that support researchers in balancing work and family demands, have a high ratio of mentors to mentees, and allow plenty of time for senior researchers to provide detailed feedback on participants' writing [8]. Courses longer than one day are also preferred [11]. Our experience highlights some barriers and facilitators to transforming abstracts into manuscripts. Some of our participants needed a better understanding of research methodology

Table 3
Progress in manuscript submission by six months after the ICFP2022 WHO scientific writing, mentoring and coaching course

Progress in manuscript submission	Number of participants *n* (%)
There is no progress on the manuscript	9 (13)
Manuscript writing commenced but was not near completion	15 (22)
Manuscript near completion	11 (16)
Manuscript submitted (rejections 2, awaiting response 1, accepted 2 [published 1])	5 (7)
Inactive	27 (40)
Total	67 (100)

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and were not ready in their research careers to write a journal article. Moreover, participants had different motivation levels; some were ready to commit to the writing process, whilst others were not. The decision to hold the workshops during a major conference had advantages as participants were initially very motivated. However, the timing of the seminars at 7:30 AM resulted in fewer attendees. Delivery of the four-hour in-conference component of our course as a single half-day workshop may prove more effective for participant retention. However, this needs to be evaluated.

A few participants enquired about financial support for publication during the coaching program. Since this was beyond the scope of the training, the publication cost could have prevented some from progressing in their manuscript writing. This may also limit the choice of suitable journals for submitting manuscripts. Furthermore, most journals reject manuscripts whose subject matter is outside their interest and navigating this challenge to identify the correct journal may be daunting for junior researchers. While we discussed journal selection during our in-conference workshop, understanding and mastering this process can take time. We will provide more individual support for future courses to help build these skills throughout the coaching program.

We have learnt several lessons from this course and acknowledge some of its key limitations. We did not capture the previous experience of research methods or scientific writing training at the beginning of the course, which could have helped tailor specific advice for participants. Similarly, it would have been helpful to know the participants' professional backgrounds (e.g. medical professionals, non-government organisations, academic staff) to better match mentors and coaches with participants, which could have improved course experience and access to other funding and support to publish their article. We also acknowledge low survey completion rates (39% for the in-conference workshops and 50% for the coaching program). High survey participation reduces survey bias. Whilst we sent each survey up to three times electronically, future workshops could improve response rates using evidence-based approaches such as pre-notifying potential participants of the surveys, conducting the survey during the workshop [12], or using different survey modalities (paper, mobile, web-based) [13].

Despite these challenges, this course demonstrates that with adequate support, some junior professionals can develop the necessary skills and motivations to scale the hurdle of manuscript writing and achieve the critical milestone in their careers. Short workshops or webinars alone are not enough to provide meaningful guidance to junior researchers. Incorporating post-conference coaching and webinars proved essential to the course, consolidating learning and motivating the participants in their journey as scientific authors. Future programs could benefit from understanding the participant's specific backgrounds to tailor support to help achieve a publication.

Acknowledgements

The authors would like to acknowledge the support and time given by the mentors and coaches who supported this program and the invited experts who contributed to the workshop's delivery.

Author contributions

All authors designed and delivered the program described in this paper. J.E.H. wrote the first version of the manuscript, and all other authors contributed to revisions and approved the final version. R.I. and F.P. collected and interpreted data on the coaching program. J.F., J.C.R. collected and interpreted data on the in-course assessments. J.K. and R.K. were joint senior authors.

Data availability statement

The full dataset is available through Hirst, J.E. (2024). Data from an evaluation of the WHO ICFP2022 Scientific Writing, Mentoring and Coaching Course [Data set]. The International Conference on Family Planning (ICFP) 2022 (ICFP2022), Pattaya, Thailand. Zenodo. https://doi.org/10.5281/zenodo.11047208.

Appendix A. Supporting material

Supplementary data associated with this article can be found in the online version at doi:10.1016/j.contraception.2025.110810.

Textbox 2
Recommendations to support scientific writing skills for researchers from LMIC settings

- Design a more extended duration program to achieve higher rates of manuscript publication (e.g. 1 year instead of 6 months).
- Provide course content in different formats and languages to suit different learning styles
- Address the challenge of linking junior researchers and practitioners with more experienced scientists at large conferences through dedicated mentoring sessions rather than relying on busy people to connect themselves.
- Recognise the value of ongoing community support through webinars and shared learning events.
- Consider different engagement methods after the conference to provide ongoing support, e.g. WhatsApp or other social media platforms.
- Before enrollment, encourage students to attend an Introduction to Scientific Research and Methods course such as those run by GFMER (https://www.gfmer.ch/2024-courses/research-methodology/index.htm)
- Gain support from the participants' host institution to support access to data, time allocation for writing and publication plans

GFMER, Geneva Foundation for Medical Education and Research; LMIC, low- or middle-income country.

GFMER, Geneva Foundation for Medical Education and Research; LMIC, low- or middle-income country.

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