

IMPERIAL

Grantham Institute

How have the UK public been affected by extreme heat and what do they think about the risks that it poses in the future?

Dr Neil Jennings (Grantham Institute, Imperial College London),
Dr Pauline Paterson (LSHTM), Dr Clair Barnes (Imperial College
London), Prof Lorraine Whitmarsh (University of Bath), Dr
Candice Howarth (LSE).

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The Intergovernmental Panel on Climate Change's Sixth Assessment report concluded that the frequency and intensity of heatwaves and extreme heat has increased globally as a result of climate change.

Such extremes of temperature negatively affect people's physical and mental health and put pressure on health systems.

They also affect the productivity of the workforce. The International Labour Organisation (2019) estimate that "by 2030 the equivalent of more than 2 per cent of total working hours worldwide is projected to be lost every year, either because it is too hot to work or because workers have to work at a slower pace".

The UK is certainly not immune to these impacts. Temperatures broke 40C for the first time in 2022 and the series of heatwaves that summer were responsible for the premature death of almost 3,000 people in the UK.

When it comes to workforce productivity, the hot summer of 2020 is estimated to have led to a 'Gross Value Added' (GVA) loss of £5.3 billion - equivalent to approximately 0.2% of GDP that year (Office for National Statistics, 2021).

Climate change: Last year's UK heatwave 'a sign of things to come'

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Such impacts emphasise the importance of interventions that help people, communities and businesses to adapt to a warming climate, alongside more widespread measures aimed at reducing greenhouse gas emissions.

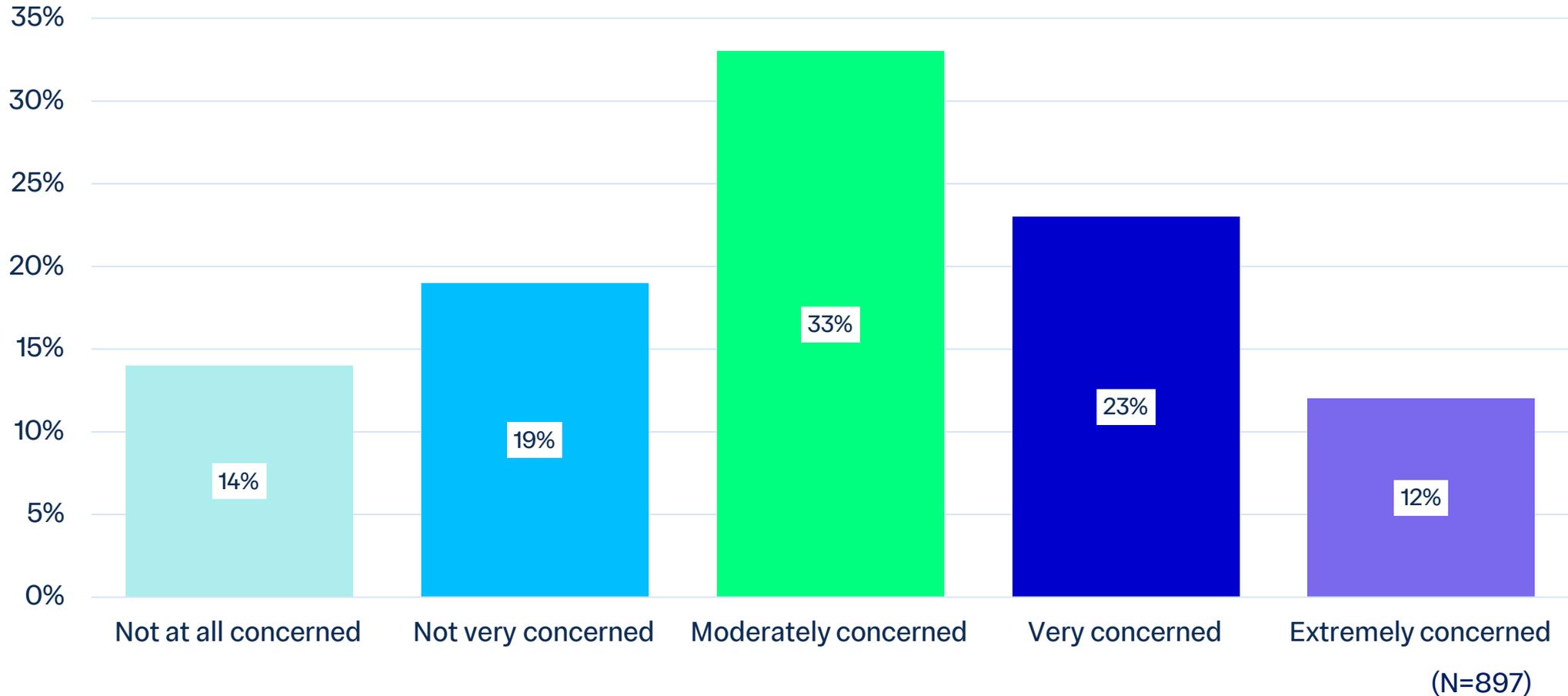
Yet, the Climate Change Committee (2023) found “very limited evidence of the implementation of adaptation at the scale needed to fully prepare for climate risks facing the UK across cities, communities, infrastructure, economy and ecosystems”.

Given this lack of adaptation implementation, how have the public been affected by hot weather and what do they think about the risks it poses to their health in the future?

These slides summarise findings from a nationally representative sample (on the basis of age, gender and ethnicity) of 897 people who were asked to share their experience of heatwaves and very hot weather in the UK. The survey was conducted via the platform Prolific.com between 2-4 October 2024.

Over a third of respondents are extremely or very concerned with heatwaves in the UK

“How concerned are you about heatwaves and very hot weather in the UK?”



Extreme heat is already affecting communities across the UK

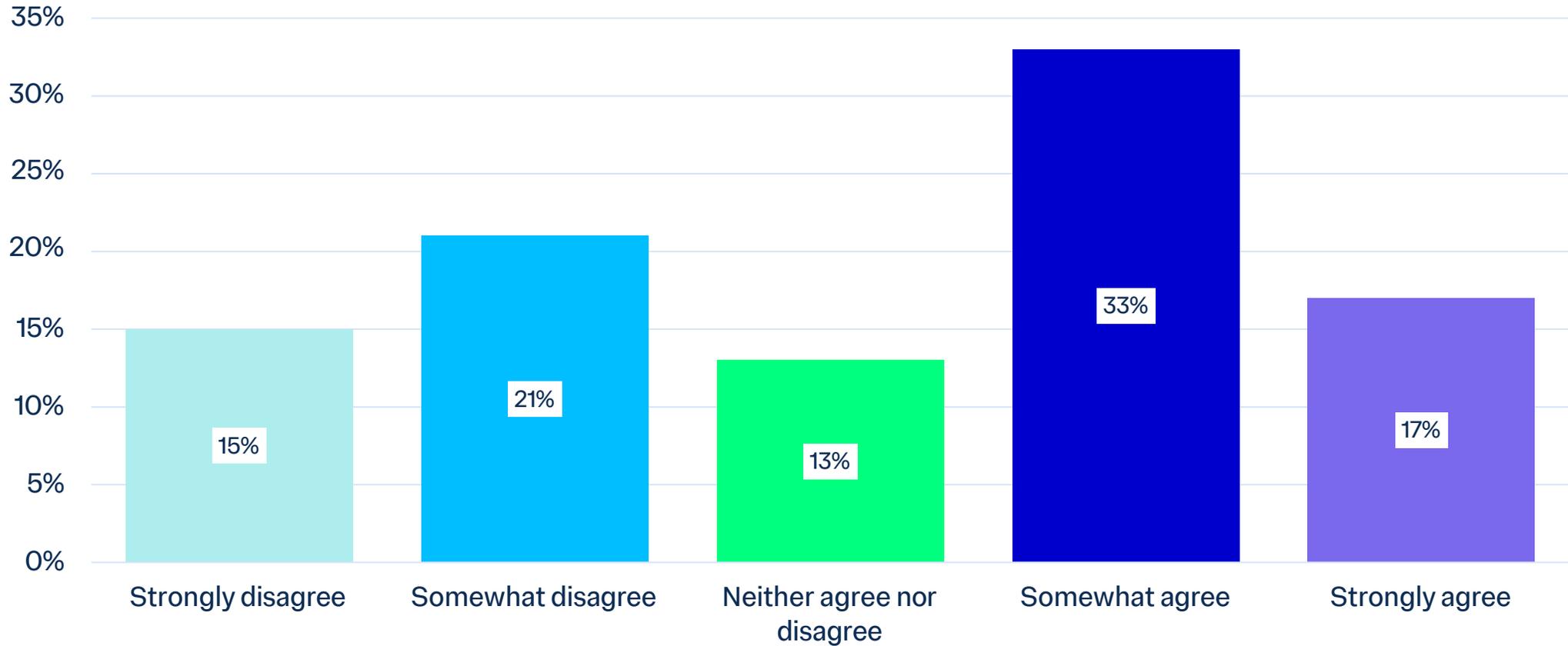
Crucially, our findings show that a significant share of respondents are already affected by extreme heat, particularly in the context of the built environment.

Across the UK, urban areas tend to be more vulnerable to overheating because of the Urban Heat Island effect where more heat is absorbed and held by urban areas. This can lead to central urban areas being 4-5C warmer compared to the outskirts of towns and cities (UKHSA, 2023).

Certain types of properties such as urban flats and terraced houses are more prone to overheating and can, relatedly, increase the exposure risk for particular groups of the population such as social housing tenants, lower income households and vulnerable individuals such as the elderly (UKHSA, 2023).

About half of respondents live in properties that get uncomfortably hot during heatwaves

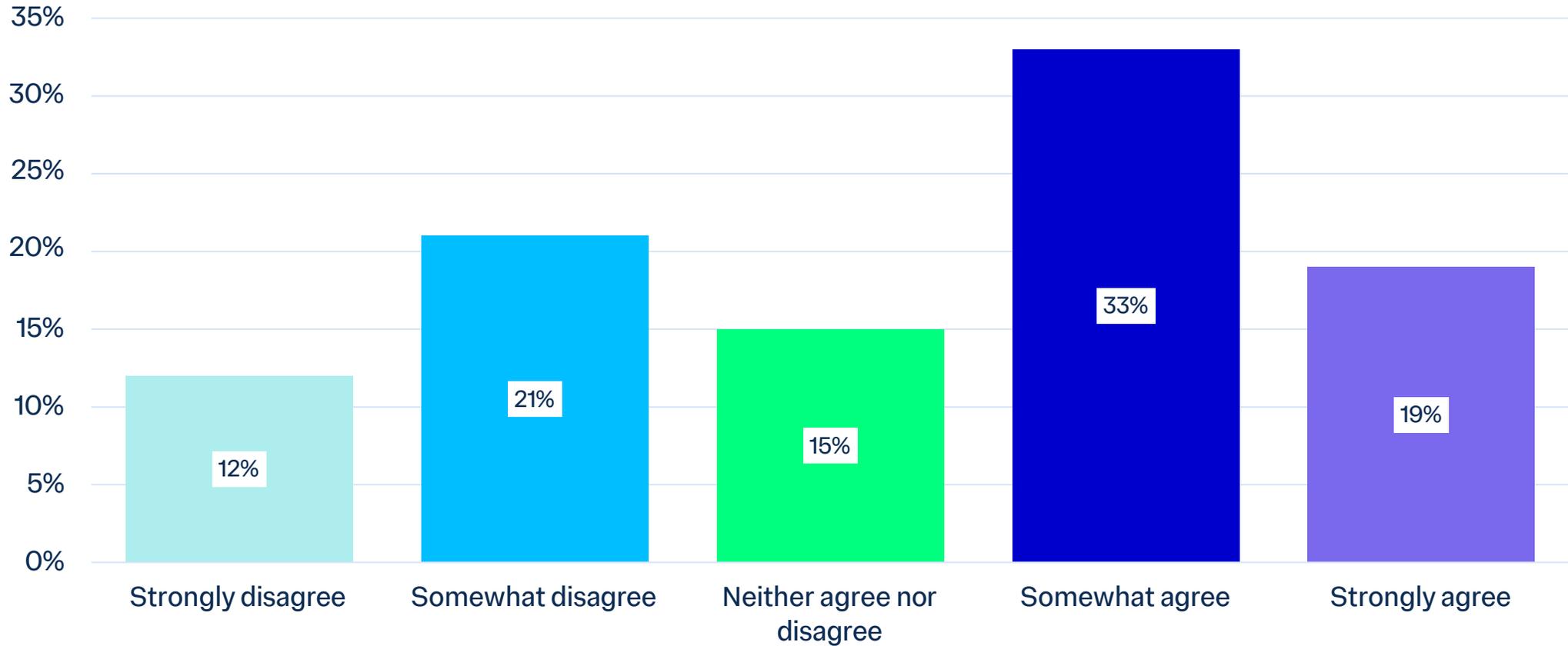
“Where I live gets uncomfortably hot indoors during heatwaves and very hot weather”



(N=897)

A similar proportion struggle to sleep during hot weather

“I struggle to sleep during hot weather as where I live gets uncomfortably hot overnight”



(N=897)

Extreme heat affects workforce productivity

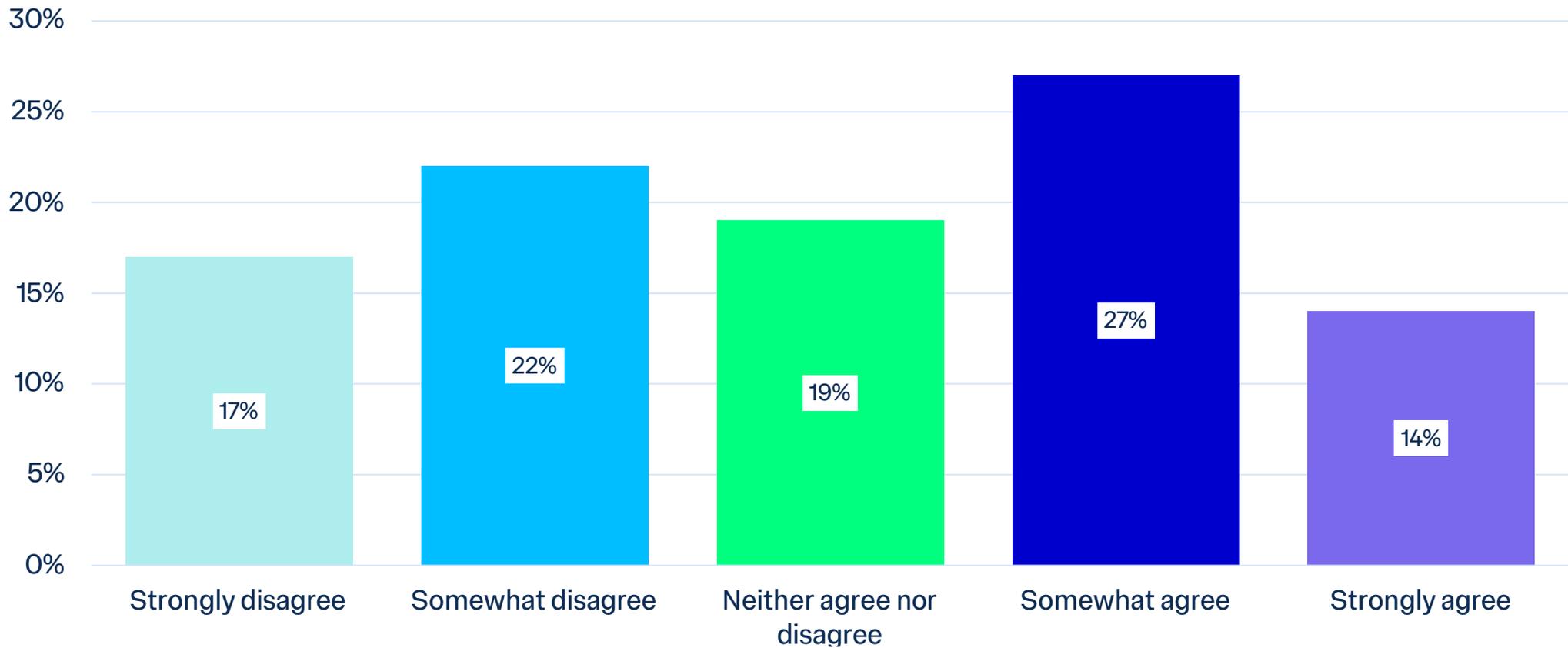
Extreme temperatures can have negative impacts on people's ability to work effectively.

It can reduce cognitive and physical performance in the workplace and in extreme cases lead to heatstroke or even death. The risks for outdoor workers is particularly acute such as for those working in agriculture, construction, transport and tourism.

The Office for National Statistics (2021) estimate the gross value added (GVA) lost from hot days in Great Britain from 1998-2021 was £1.2billion per year.

The productivity of over 40% of respondents is negatively affected by hot weather as they struggle to work

“I struggle to perform work tasks during hot weather as where I work becomes uncomfortably hot during my working hours”



(N=897)

Extreme heat affects people's health and the NHS

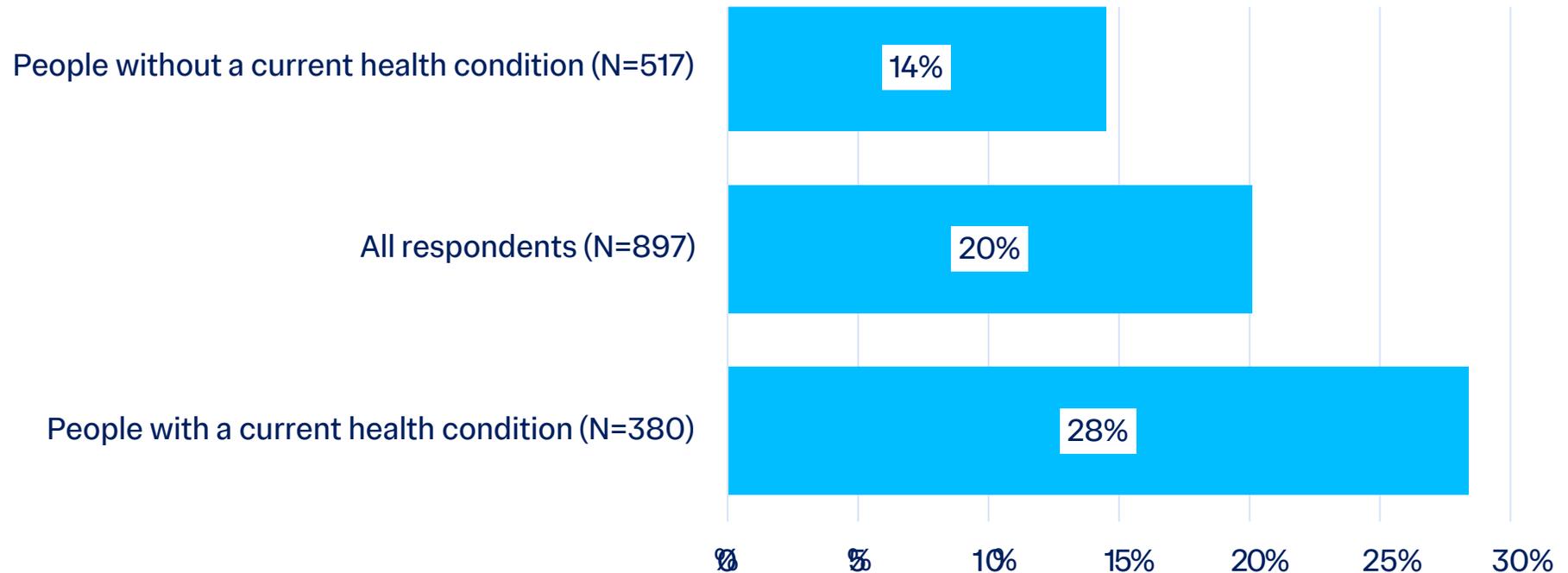
Exposure to high temperatures can lead to a range of negative physical and mental health outcomes including heatstroke, heat exhaustion, death and increased suicide risk (UKHSA, 2023).

Older people, the very young, and people with preexisting health conditions (e.g. cardiovascular, respiratory diseases, diabetes) are at greater risk of the health impacts of extreme heat. This is because heat can make their existing condition worse or they may lack the capacity to take adaptive measures to reduce their exposure to extreme heat (e.g. they may be housebound).

All of this takes a physical and emotional toll on people and increases the pressure on the NHS.

People with pre-existing health conditions were twice as likely to have experienced negative health impacts from hot weather compared to those without such conditions. And those with mental health conditions were particularly likely to have experienced negative health impacts of extreme heat (see Annex A)

Percentage of respondents who experienced a negative health impact from extreme heat in the previous 5 years



(N=897)

For those affected, the health impacts were often severe:

“I experienced heart palpitations, breathlessness and fatigue during two separate heatwaves in 2020 and in 2022.”

(Female, White, 55-64yrs, Northern England)

“I was hospitalise[d] due to heat stroke.”

(Male, White, 55-64yrs, Southern England)

“Due to the heat it has been so bad at points I've been severely dehydrated. Passed out and submitted to hospital for it.”

(Male, White, 65+yrs, Northern England)

... and the vulnerability of people with pre-existing health conditions was clear:

“I am type 1 diabetic and we had a spell of very hot weather that made me quite ill due to blood sugar problems.”

(Male, White, 45-54yrs, Wales)

“It made living unbearable as I get flashes with menopause so already too hot and triggers my asthma.”

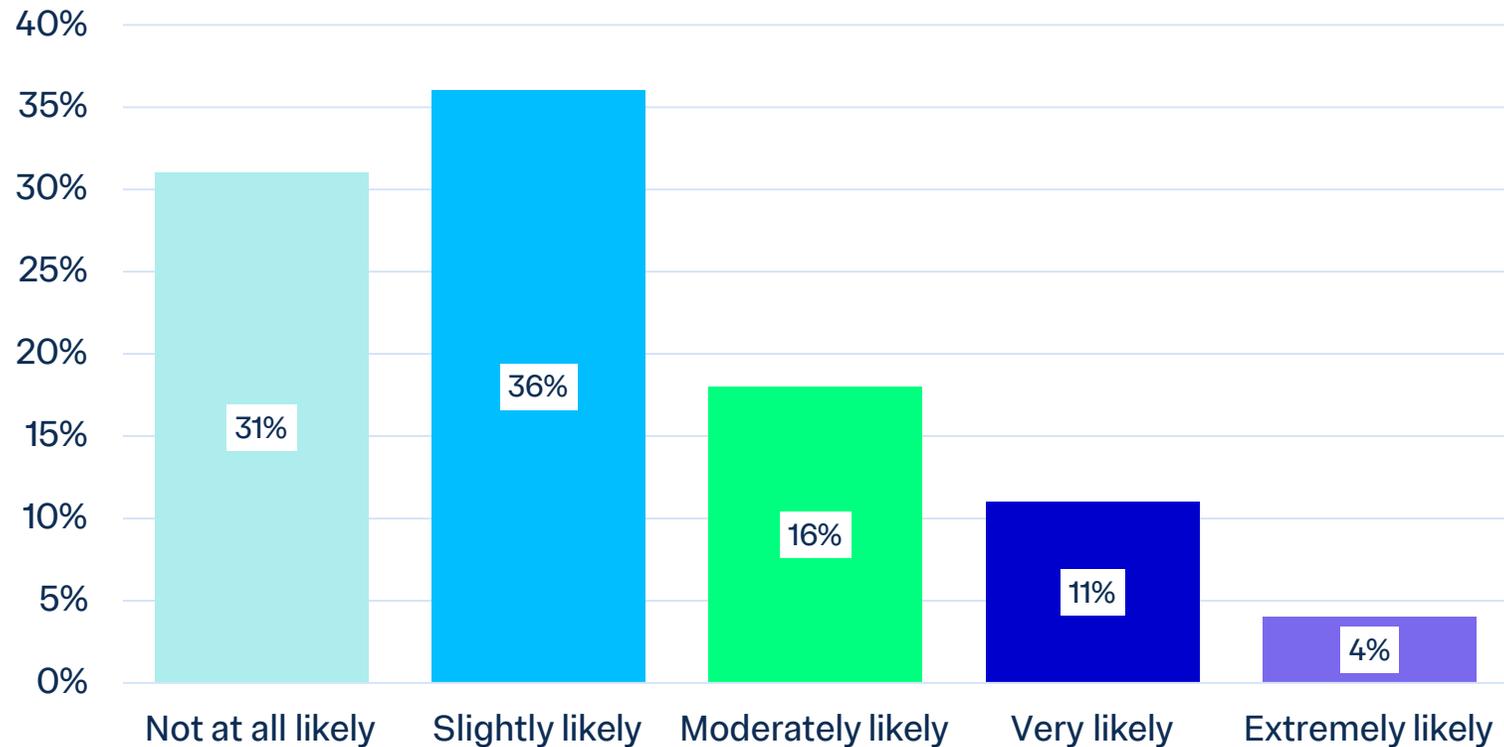
(Female, White, 55-64yrs, Scotland)

“I suffer with COPD so hot weather means I struggle to get my breath.”

(Female, White, 55-64yrs, Mid England)

While 20% of people said their health had been affected by extreme heat over the last 5 years, only 15% of respondents perceive it to be very/extremely likely that their health will be affected by extreme heat in the next 5 years

**How likely or unlikely do you feel the following statements are:
“In the next 5 years, heatwaves and very hot weather will affect my health personally”**



(N=897)

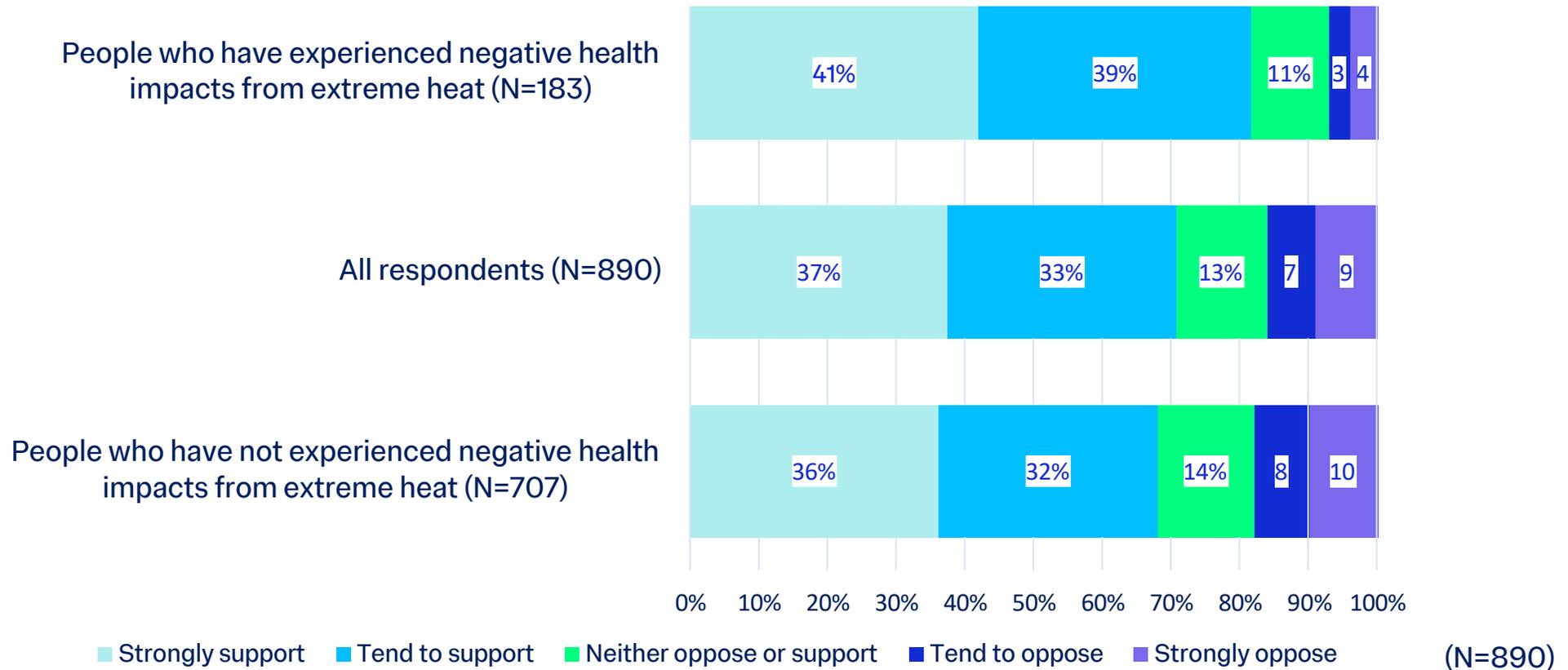
Given that temperatures are rising, this suggests that people may be underestimating the health risks that extreme heat poses to them, or that they are taking steps to reduce their exposure to extreme heat. In the absence of increased government action, this unpreparedness/lack of awareness could lead to increased negative health impacts, with knock on effects for the UK's health system.

Government action should go further

Our survey asked people what they thought about the UK Government's Net Zero target and whether they thought the Government was doing enough to adapt to a warming climate. We also looked at how these perceptions varied between those who health had, and had not, been affected by extreme heat over the previous five years.

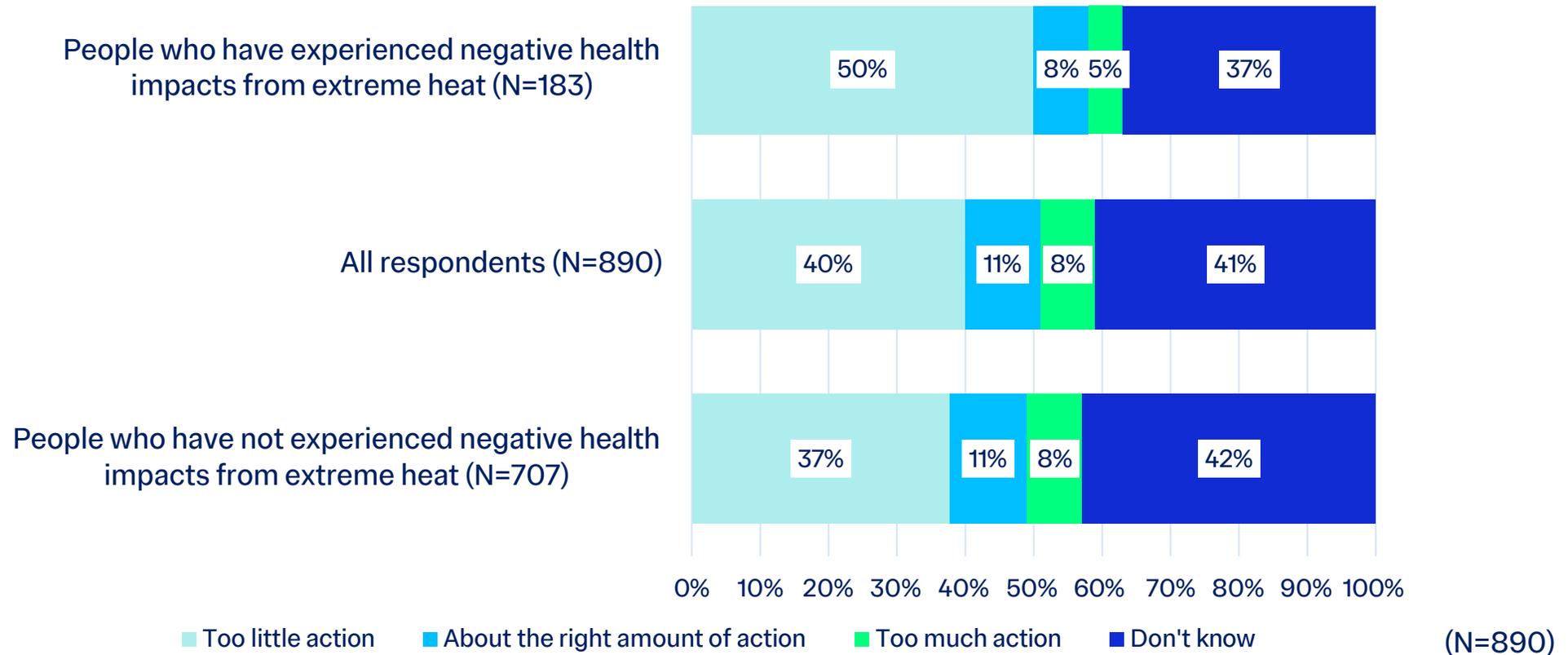
Exposure to the negative health effects of extreme heat was associated with higher levels of support for action to reduce greenhouse gas emissions. Overall, public support for the UK 2050 Net Zero target was high with 70% of people supporting the policy. For those whose health had already been affected by extreme heat, this value was even higher (80%)

“To what extent do you support or oppose the Net Zero target?”



When it comes to adaptation, a high proportion of people are yet to form an opinion on Labour’s climate adaptation plans, but the majority of those who have an opinion believe existing plans to be insufficient. This is particularly high for those who have experienced negative health impacts from extreme heat

“Do you think the new Labour government is planning to do too much, too little or about the right amount to prepare for the impacts of climate change (e.g. to prepare for hotter summers or more extreme weather events such as floods)?”



Key findings

People are concerned about extreme heat and a considerable proportion believe that the Government's adaptation plans don't go far enough

- 35% are very or extremely concerned about heatwaves and hot weather in the UK.
- Five times as many people think the Government's adaptation plans are insufficient compared to those who think it goes too far.

The impacts of climate change are already negatively affecting people's health in the UK and increasing the pressure on the NHS

- People with physical and mental health conditions are particularly vulnerable to the negative health impacts of extreme heat.
- A half of the UK public struggle to sleep during hot weather and a fifth have experienced negative health impacts due to heatwaves in the last 5 years.

Key findings

Exposure to extreme heat affects the productivity of the UK workforce

- The productivity of two-in-five people has been negatively affected by hot weather as they struggle to work due to the heat.

While the public is concerned about very hot weather, they may be underestimating the risk of experiencing negative health impacts caused by such weather in the future

- Only 15% of respondents perceive it to be very/extremely likely that their health will be affected by very hot weather in the next 5 years, compared to 20% who report that their health was negatively affected in the previous 5 years.

Key recommendations

As the government looks to deliver on its missions to support the NHS and promote growth, greater attention should be paid to climate adaptation to minimise the negative health and productivity impacts of extreme heat. Government action to boost resilience to extreme heat and futureproof UK communities and businesses should include:

Increased ambition on measures to adapt the built environment to a warming climate, to reduce the risk of homes and workplaces overheating. This applies to standards for new buildings as well as the existing housing stock, alongside greater emphasis on green and blue infrastructure to help mitigate the urban heat island effect.

Efforts to increase awareness amongst the public of the risks posed by extreme heat and the actions they can take to reduce their exposure.

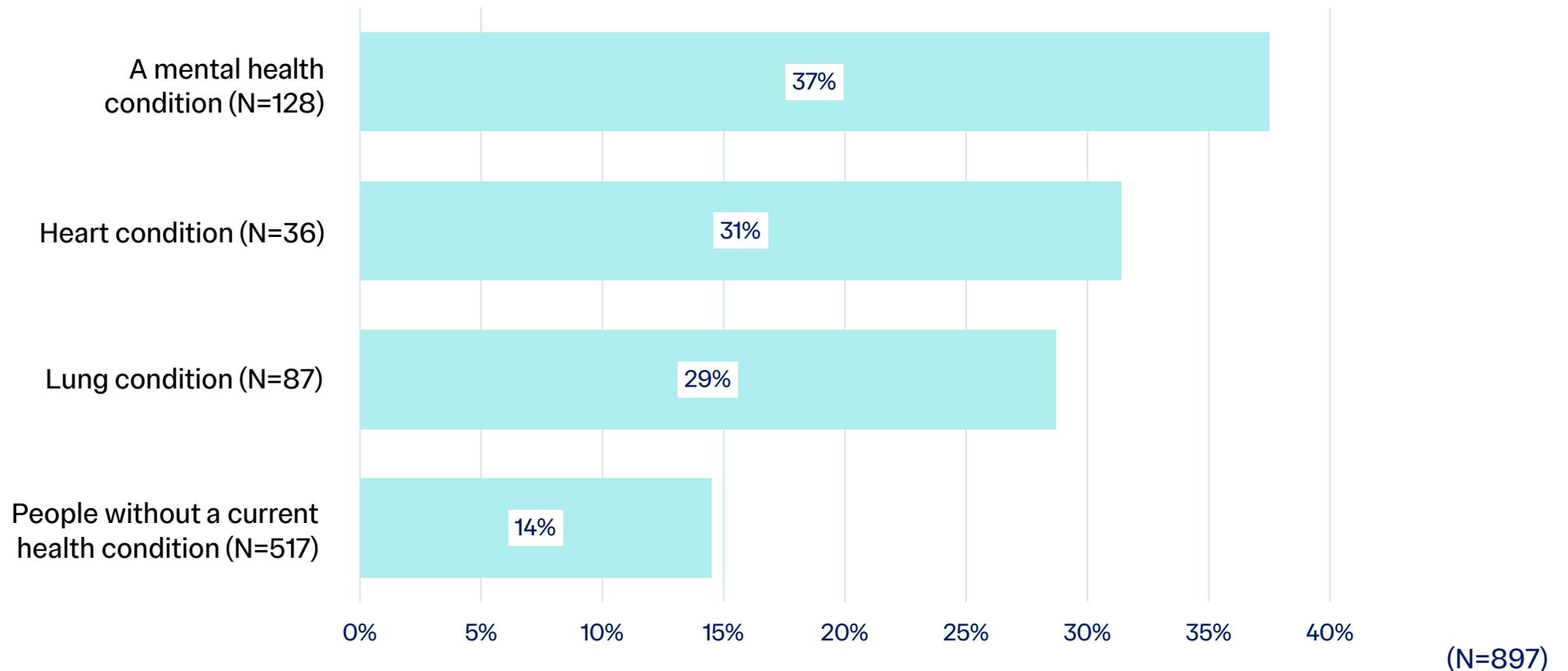
Targeted support towards those with pre-existing physical and mental health conditions before, during and after periods of extreme heat.

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Annex A: The proportion of people who had experienced negative health impacts from hot weather was particularly high for people who had mental health, heart or lung conditions

Percentage of respondents with certain current health conditions who have experienced negative health impacts linked to hot weather in the last 5 years



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