

## Mental Health Professionals in the Era of Climate Change: Readiness, Lived Impacts, Motivation to Respond, and Obstacles to Meaningful Engagement

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### Abstract

The body of research documenting the mental health consequences of climate change has expanded substantially in recent years, alongside increasing expectations for health professionals to play an active role in safeguarding population health. Despite this, psychologists' awareness of climate-related health effects and their perceived responsibilities in climate change mitigation remain poorly understood. This study surveyed a sample of Australian psychologists (N = 59) to evaluate their readiness to recognise and manage climate-related mental health concerns, their exposure to climate–health impacts, their inclination to engage in climate action, and the obstacles limiting such engagement. Data were examined using descriptive statistics and associative analytical approaches. Findings indicate that participants generally lacked sufficient preparedness to identify or treat mental health conditions associated with climate change and demonstrated minimal involvement in mitigation activities. Insufficient knowledge regarding climate–health relationships and mitigation strategies, together with ethical uncertainties, emerged as the primary constraints on communication and advocacy efforts. Given the projected escalation of climate-related mental health burdens, these findings highlight an urgent need to strengthen the capacity of the psychological workforce through targeted professional education and by reframing climate change explicitly as a public health emergency.

**Keywords:** Climate change, Mental health, Health impacts, Psychologists, Professional role, Professional preparedness

### Introduction

Climate change affects mental health through a complex network of interrelated causal and associative mechanisms [1, 2]. A wide range of psychological and behavioural outcomes have been linked, either directly or indirectly, to climate-related stressors, including post-traumatic stress disorder (PTSD), anxiety, depressive symptomatology, aggression, domestic violence, behavioural disturbances in children, psychiatric hospital admissions, suicidality, substance use disorders, and

adverse medication effects resulting from altered metabolic processes [1, 3]. In addition, heightened awareness of environmental degradation and anticipated climate impacts has been shown to diminish psychological well-being and increase symptoms of depression, anxiety, and pre-traumatic stress [4, 5]. Many of the established physical health consequences of climate change are also associated with elevated rates of mental illness, as psychological disorders are highly prevalent among individuals living with cardiovascular disease [6], renal conditions [7], allergies, asthma, and respiratory illnesses [8, 9].

When the interaction between climate exposure and the broader social determinants of health is considered, it becomes evident that the overall mental health burden attributable to climate change remains incompletely characterised. Scholars have argued that adopting a systems-based analytical framework [10] is essential to

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capturing the complex interplay between vulnerability factors and multiple exposure pathways that contribute to climate-related mental health deterioration [2, 11, 12]. As climate pressures intensify, increases in mental health presentations are expected, driven not only by rising rates of climate-sensitive physical illnesses but also by heightened awareness of environmental decline, population displacement, disruption of social structures, food insecurity, and worsening socioeconomic conditions. Consequently, demand for mental health services is anticipated to rise substantially in the context of ongoing climate change [3].

Despite the profound health implications associated with climate change, limited research has examined how health professionals perceive their role in addressing this challenge. Existing evidence suggests that although healthcare workers broadly acknowledge the health consequences of climate change, many report inadequate knowledge regarding the mechanisms linking climate change and health outcomes [13, 14].

The healthcare sector itself represents a significant contributor to climate change, accounting for an estimated 1–5% of global greenhouse gas emissions through both direct and indirect activities [15]. Recognition of this environmental footprint has prompted calls for a fundamental reconceptualisation of health, including the integration of environmental health into healthcare education and the acknowledgement of health professionals' responsibility to engage with climate change within their practice [16–18]. The planetary health framework explicitly positions human health as inseparable from environmental integrity, defining climate change as both a planetary and human health crisis [18–20]. In response to mounting climate pressures on health systems, the World Health Organization has recently released a framework promoting climate-resilient and low-carbon healthcare systems, emphasising the development of a climate-competent health workforce [21].

Australia is particularly vulnerable to environmental disasters, making the mental health impacts of climate change a pressing concern. Although the total burden remains difficult to quantify, recent epidemiological findings indicate that 25% and 16.6% of Australians meet screening criteria for PTSD and pre-traumatic stress, respectively, while approximately 9% experience significant eco-anxiety [5]. Additional research among individuals exposed to extreme weather events reported anxiety symptoms in 73% of respondents, depressive

symptoms in 49%, PTSD symptoms in 30%, and worsening of pre-existing mental health conditions in 25% [22].

A recent nationwide survey conducted by the Climate and Health Alliance (CAHA), involving 875 Australian healthcare professionals—including physicians, nurses, midwives, public health practitioners, and medical students—reported findings consistent with earlier studies regarding climate-health awareness and engagement [14, 15, 23]. However, to date, psychologists' perspectives on their professional responsibilities in relation to climate change have not been empirically examined. While psychological professional bodies have issued position statements and guidelines recognising psychologists' potential contribution to climate change mitigation and adaptation [24–26], the extent to which these recommendations translate into practice remains unclear. Empirical data addressing psychologists' understanding of climate–health relationships and their perceived professional role in responding to climate change are currently lacking.

Accordingly, this exploratory study seeks to examine factors associated with Australian psychologists' preparedness to identify and manage:

- (1) the mental health impacts of climate change;
- (2) exposure to climate-related health effects; and
- (3) their willingness to engage in climate action, alongside perceived barriers to such engagement.

## Materials and Methods

### *Study design*

This study employed a cross-sectional, web-based survey derived from a modified version of the RUN survey developed by the Climate and Health Alliance (CAHA), which was originally designed to investigate Australian healthcare professionals' perspectives on climate change [23]. Psychologists were not included in the initial CAHA survey. Moreover, psychologists typically spend extended periods in direct client engagement compared with many other health professionals previously surveyed. A cross-sectional design was selected due to its efficiency in reaching a broad participant pool and its suitability for comparative analysis with earlier CAHA findings.

Following adaptation of the original instrument, the questionnaire underwent pilot testing with five psychologists who had expertise in climate change and its mental health implications. Feedback from the pilot

phase led to refinement of wording and the elimination of redundant items to improve clarity and relevance.

The final survey comprised 39 items, including two open-ended questions and 37 closed-ended questions, nine of which offered an “other” response option to capture additional detail. The survey was organised into three thematic sections. The first section collected demographic and professional background information, including age, geographic location, registration category, years of professional experience, and workplace characteristics such as decision-making authority, client-facing responsibilities, and employment setting. The second section explored participants’ attitudes toward climate change, personal experiences related to climate impacts, and perceived effects of climate change within their professional environments. The final section assessed psychologists’ self-perceived readiness to recognise and manage climate-related health effects and gathered views on whether addressing climate change falls within the scope of their professional responsibilities.

#### *Participants*

Eligibility for participation was restricted to individuals holding current registration as psychologists with the Australian Health Practitioner Regulation Agency (AHPRA). In Australia, psychologists may be registered under three categories: provisional registration, which applies to students in the final stages of training who practise under close supervision in approved placements; general registration, awarded upon completion of six years of accredited psychology education; and general registration with endorsement, granted to psychologists who have completed a specialised Master’s degree followed by two years of intensive supervised practice [27]. All three registration types were included, as each permits client contact within professional practice. As of July–September 2022, Australia had 35,315 generally registered psychologists and 7,977 provisionally registered psychologists, yielding a total eligible population of 43,292 professionals [28].

Recruitment was conducted through multiple channels, including social media dissemination, professional networks, and outreach via professional organisations. The recruitment notice appeared in the Australian Psychological Society (APS) weekly newsletter on 14 October 2022 [29] and in the CAHA weekly newsletter on 28 September 2022 [30]. The total number of psychologists exposed to the recruitment materials could

not be determined. All individuals who initiated the survey completed it, resulting in a response completion rate of 100%.

Survey data were collected using the Qualtrics platform over a nine-week period spanning September to November 2022.

#### *Variables*

Preparedness was assessed using a framework aligned with the core competency domains defined by the Psychology Board of Australia (PBA)—namely disciplinary knowledge, intervention skills, and research and evaluation capacity [27]. Variables examined under this domain included professional experience, registration endorsement status, personal interest in climate change, perceived importance of climate change, self-assessed preparedness, prior knowledge of climate change, and previous training related to climate change issues.

Exposure to climate-related health impacts was evaluated through measures of participants’ experiences with climate-driven events, the emotional effects of climate change on respondents, the frequency of clients presenting with climate-related health concerns, and whether professional practice had been affected by climate change within the preceding 12 months.

Assessment of willingness to act on climate change and perceived barriers to action focused on participants’ personal interest in and perceived importance of climate change, ethical considerations, level of involvement in professional decision-making, perceived professional obligation to address climate change, and perceived facilitators and obstacles to engaging in climate-related action within professional contexts.

Unless explicitly stated otherwise, survey items referred broadly to the health consequences of climate change, encompassing all relevant health outcomes. This approach reflects the study’s holistic conceptualisation of health, recognising that rigid distinctions between physical and mental health are neither empirically supported nor conducive to understanding the full scope of climate-related health impacts.

#### *Statistical analysis*

Data cleaning was conducted using Excel, and statistical analyses were carried out with R Commander version 2.7-2 for Mac (R Foundation for Statistical Computing, Austria; <https://www.R-project.org/>; accessed on 31 July 2022). Quantitative variables were summarized using

frequency distributions, and an initial descriptive analysis of all measures was performed before systematically examining associations between variables. Due to the small sample size, responses from certain Likert-scale items were collapsed into two nominal categories to enable chi-square testing. Participants with missing responses were retained in the dataset, as these were reported in the descriptive analyses and did not affect the study findings. Three respondents indicated that they did not currently work directly with clients: one did not answer the item, one worked exclusively in academia, and one identified as a researcher. These participants were nonetheless included in analyses of preparedness because their active registration as psychologists permits direct client contact if they choose, and the capacity to teach or discuss the mental health impacts of climate change presupposes professional preparedness. Open-ended responses provided under the “other” option are presented

illustratively to highlight participants’ viewpoints, as the number of such responses was insufficient to justify a full qualitative analysis. Ethical approval was obtained from the University of Queensland Human Research Ethical Committee (2022/HE001135).

## Results and Discussion

### *Sample characteristics*

Of the 61 respondents, two were excluded because they were not registered psychologists, yielding a final sample of 59 participants. The sample was largely female, most commonly aged 35–44 years, and predominantly based in metropolitan regions. Victoria was the most frequently reported state of residence ( $n = 26$ ; 44%), followed by Queensland ( $n = 21$ ; 35.6%), making these the most represented locations in the study. One participant opted not to disclose their place of residence. The demographic characteristics of the sample are summarized in **Table 1**.

**Table 1.** Demographic characteristics of participants ( $N = 59$ )

Demographic Variables	n (%)
<b>Age</b>	
18–24 years	2 (3.4%)
25–34 years	12 (20.4%)
35–44 years	21 (35.6%)
45–54 years	15 (25.5%)
55–64 years	4 (6.8%)
<b>Gender</b>	
Male	8 (13.6%)
Female	49 (83.1%)
Transgender	1 (1.7%)
Prefer not to disclose	1 (1.7%)
<b>State/Territory</b>	
Australian Capital Territory (ACT)	1 (1.7%)
New South Wales (NSW)	5 (8.5%)
Queensland (QLD)	21 (35.6%)
South Australia (SA)	1 (1.7%)
Tasmania (TAS)	1 (1.7%)
Victoria (VIC)	26 (44.1%)
Western Australia (WA)	3 (5.1%)
Missing	1 (1.7%)
<b>Years of Experience</b>	
Fewer than 5 years	19 (32.2%)
5–10 years	14 (23.7%)
10–15 years	10 (16.9%)

More than 15 years	16 (27.1%)
<b>Registration Type</b>	
Provisional	13 (22.0%)
General (without endorsement)	19 (32.2%)
General (with endorsement)	27 (45.8%)
<b>Area of Endorsement</b>	
Clinical psychology	18 (30.5%)
Neuropsychology	2 (3.4%)
Health psychology	3 (5.1%)
Counselling psychology	2 (3.4%)
Organisational psychology	2 (3.4%)
No endorsement	32 (54.2%)
<b>Primary Work Setting</b>	
Private practice	36 (61.0%)
Government	4 (6.8%)
Community mental health services	5 (8.5%)
University	5 (8.5%)
Hospital	3 (5.1%)
School	3 (5.1%)
Aboriginal health services	1 (1.7%)
Other private organisation	1 (1.7%)
Other	1 (1.7%)
<b>Professional Roles (multiple responses possible)</b>	
Direct client contact	56 (94.9%)
Research	13 (22.0%)
Academic/teaching	10 (16.9%)
Leadership/management	7 (11.9%)

#### *Participants' personal engagement with climate change*

We additionally investigated how much climate change matters to participants individually, expecting that higher personal relevance would relate to greater readiness and active involvement in measures to reduce its effects. Out of the respondents, 56 (95%) stated they were moderately or highly interested in the topic, and 45 (78%) considered it very or extremely significant to them on a personal level. This feeling of personal relevance was highest in the 45–54 age range (22%), with the 35–44 age range nearly matching it (22.3%). Despite this, we identified no association between the degree of personal interest and levels of preparedness.

#### *Encounters with climate-related health consequences Effects of Extreme Weather on Professional Activities*

During the 12 months before the survey, 26 respondents (44%) noted that extreme weather events had interfered with their work, according to the data in Table 2. Among this group, 14 individuals (54%) were based in Queensland, and eight (30%) in Victoria. The specific types of events that caused these workplace disruptions over that timeframe are listed in Table 2.

**Table 2.** Frequency of participants' exposure to climate change-related hazards at work (N = 26).

Type of Climate Hazard	Number of Participants (%)
Smoke from bushfires	1 (1.7%)
Extreme heat	4 (6.8%)
Flood events	19 (32.2%)
Severe storms	13 (22%)

Note: Respondents could report experiencing more than one hazard.

### *Exposure to climate change impacts on mental health (Clients)*

Participants were asked whether their clients' health had been affected by climate change, followed by an open-ended question allowing them to describe all observed health impacts. The most frequently reported effects were heightened stress and anxiety. Some participant responses included:

- “Increased stress, young people expressing distress about climate change and the lack of political action; one client’s suicidal thoughts worsened during bushfires due to distress over inaction on climate change.”
- “Loss of property from extreme weather events, affecting mental health, stress, family stability, and related issues such as poor diet and burnout.”

- “Asthma and other respiratory-related effects.”
- “Heightened anxiety, stress, and uncertainty, compounded by social determinants like housing challenges and cost of living.”
- “Direct physical and psychological effects from home flooding, including anxiety and stress; financial consequences of flooding contributing to anxiety and depression; temporary relocation; and climate change-related grief and feelings of a foreshortened future.”

In the twelve months preceding the survey, 30 participants (50%) reported seeing clients whose mental health had been affected by climate change, while 17 respondents (29%) indicated uncertainty. The patterns of client mental health presentations are illustrated in

### Figure 1.

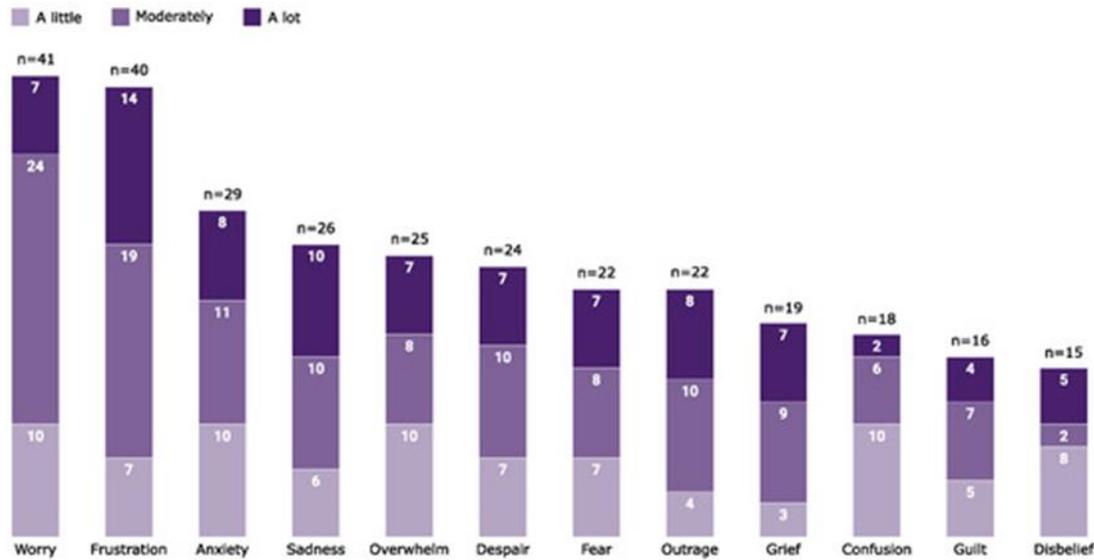


**Figure 1.** Mental health issues related to climate change (n = 30) as reported by 59 Australian psychologists over the twelve months preceding the survey.

### *Personal exposure to climate change effects on mental health*

A total of 52 participants (88%) indicated that climate change had affected them emotionally (**Figure 2**). Individuals who considered climate change to hold

significant personal importance were more prone to feelings of frustration ( $\chi^2 = 10.7$ ,  $df = 1$ ,  $p < 0.01$ ), worry ( $\chi^2 = 8.4$ ,  $df = 1$ ,  $p < 0.01$ ), and anxiety ( $\chi^2 = 11.9$ ,  $df = 1$ ,  $p < 0.01$ ).



**Figure 2.** Personal emotional experiences of climate change reported by 59 Australian psychologists.

#### *Preparedness for climate-related health impacts*

Participants overwhelmingly agreed on the need for enhanced education and training regarding the health consequences of climate change. Specifically, 50 (85%) expressed a desire to learn more about these health impacts, 49 (83%) believed such content should be included in the curricula for health-related professions,

48 (81%) supported its inclusion in ongoing professional development, and 45 (76.8%) indicated that current education and training opportunities are inadequate. **Table 3** summarizes participants' knowledge of climate-related health impacts and their views on available training.

**Table 3.** Participants' understanding and views on training related to climate–health impacts (N = 59)

Aspect	N (%)
<b>Belief about Climate Change's Impact on Human Health</b>	
Certain that it affects human health	41 (69.4%)
Likely affects human health	14 (23.7%)
Possibly affects human health	3 (5%)
Unlikely to affect human health	1 (1.7%)
<b>Knowledge and Awareness of Climate-Health Links</b>	
Well or very well informed	19 (32.2%)
Somewhat or poorly informed	40 (68%)
Interested in learning more about health effects	50 (84.7%)
Should be included in health-related professional curricula	49 (83%)
Should be incorporated into continuing professional development	48 (81%)
Consider current education/training inadequate	45 (76.8%)
<b>Experience with Formal Training on Climate Change and Health</b>	
Never received formal training	43 (73%)
Perceive training opportunities as insufficient	45 (76.3%)
Unaware of any professional association's position on climate change	37 (67.7%)
Agree that existing training sufficiently covers health impacts	21 (36%)
<b>Aspect</b>	<b>N (%)</b>

<b>Belief about Climate Change's Impact on Human Health</b>	
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Should be incorporated into continuing professional development	48 (81%)
Consider current education/training inadequate	45 (76.8%)
<b>Experience with Formal Training on Climate Change and Health</b>	
Never received formal training	43 (73%)
Perceive training opportunities as insufficient	45 (76.3%)
Unaware of any professional association's position on climate change	37 (67.7%)
Agree that existing training sufficiently covers health impacts	21 (36%)

When asked about their readiness to support clients experiencing climate-related health concerns, 27 participants (46.8%) reported feeling unprepared, 26 (44%) felt somewhat ready, and six (10.1%) felt fully prepared. For the purpose of analysis, responses were divided into two categories: "not prepared" (including unsure, not at all prepared, and not very prepared) and "prepared" (including somewhat and very prepared).

**Table 4** shows that perceived preparedness was not

significantly linked to prior training on climate change, knowledge of its health impacts, years of professional experience, or whether participants' work had been affected by climate change. In contrast, significant associations were found between preparedness and familiarity with professional guidelines, registration status, and the belief that general psychology training adequately addresses climate-health issues.

**Table 4.** Statistical association of participant's perceived preparedness for climate-health impacts (N = 59)

Characteristic	Category	Not Prepared N (%)	Prepared N (%)	Test Statistic
Climate Change Training	Training	5 (18.5)	11 (34.4)	$\chi^2(1) = 1.862$ p = 0.1
	No formal training	22 (81.5)	21 (65.6)	
Health Impacts of Climate Change	Well or very informed	7 (25.9)	12 (37.5)	$\chi^2(1) = 0.895$ p = 0.3
	Somewhat or not informed	20 (74.1)	20 (62.5)	
Professional Experience	Up to 9 years	17 (63)	16 (50)	$\chi^2(1) = 0.99$ p = 0.31
	10 + years	10 (37)	16 (50)	
Awareness of Professional Statements	Somewhat familiar	6 (22.2)	16 (50)	$\chi^2(1) = 4.83$ p = 0.02
	Not familiar	21 (77.8)	16 (50)	
Registration Status	Registered psychologist	18 (66.7)	28 (87.5)	$\chi^2(1) = 3.69$ p = 0.05
	Provisional psychologist	9 (33.3)	4 (12.5)	
Sufficiently Informed as a Psychologist	Psychology training is sufficient	4 (14.8)	17 (53.1)	$\chi^2(1) = 9.37$ p = 0.02
	Psychology training is not sufficient	23 (85.2)	15 (46.9)	
Work Affected by Climate Change	Yes	10 (37)	16 (50)	$\chi^2(1) = 0.99$ p = 0.31
	No	17 (63)	16 (50)	

*Willingness and barriers to addressing climate change*  
 Although 53 participants (90%) recognized climate change as a serious issue requiring urgent action, 50 (85%) felt the public should be better educated about climate-related health effects, and 40 (68%) agreed that psychologists have a responsibility to inform the public, 39 participants (66%) reported that they do not discuss climate change's health impacts with their clients. **Table 5** presents participants' reported comfort levels when communicating climate change-related issues to clients.

**Table 5.** Participants' understanding and views on training related to climate–health impacts (N = 59)

Topic of Communication	Comfort Level	N (%)
Informing clients about climate change-related health risks	Felt fairly or very at ease	29 (49%)
	Felt uncomfortable	19 (32%)
Guiding clients on protecting themselves from climate-related health effects	Felt fairly or very at ease	27 (45%)
	Felt uncomfortable	25 (42%)
Discussing community actions and everyday behaviors to reduce climate change	Felt at ease	25 (43%)
	Felt uncomfortable	25 (43%)

Ethical concerns and insufficient knowledge were identified as the primary reasons psychologists refrained from discussing climate change with clients, with 34 (58%) participants considering it unethical to raise the topic unless initiated by the client, 29 (49%) feeling inadequately informed to address climate-health impacts, and eight (14%) believing it was not their responsibility. Some respondents used the questionnaire's "other" option to elaborate:

"It is not the role of a practising psychologist to 'educate' clients on climate change. We can, however, support clients in managing the distress it causes through therapy."

"I don't think psychologists should promote their political views to clients. Remaining neutral ensures we address client issues effectively using evidence-based methods. I am not a climate scientist."

Regarding workplace discussions and climate-related initiatives, 45 (76%) participants perceived their colleagues as at least somewhat interested in climate change, yet only seven (11.8%) reported it being frequently discussed at work, and 16 (27%) indicated their workplace is taking steps to address it. **Table 6** presents participant responses concerning workplace climate action.

**Table 6.** Participants' perspectives on workplace climate action (N = 59)

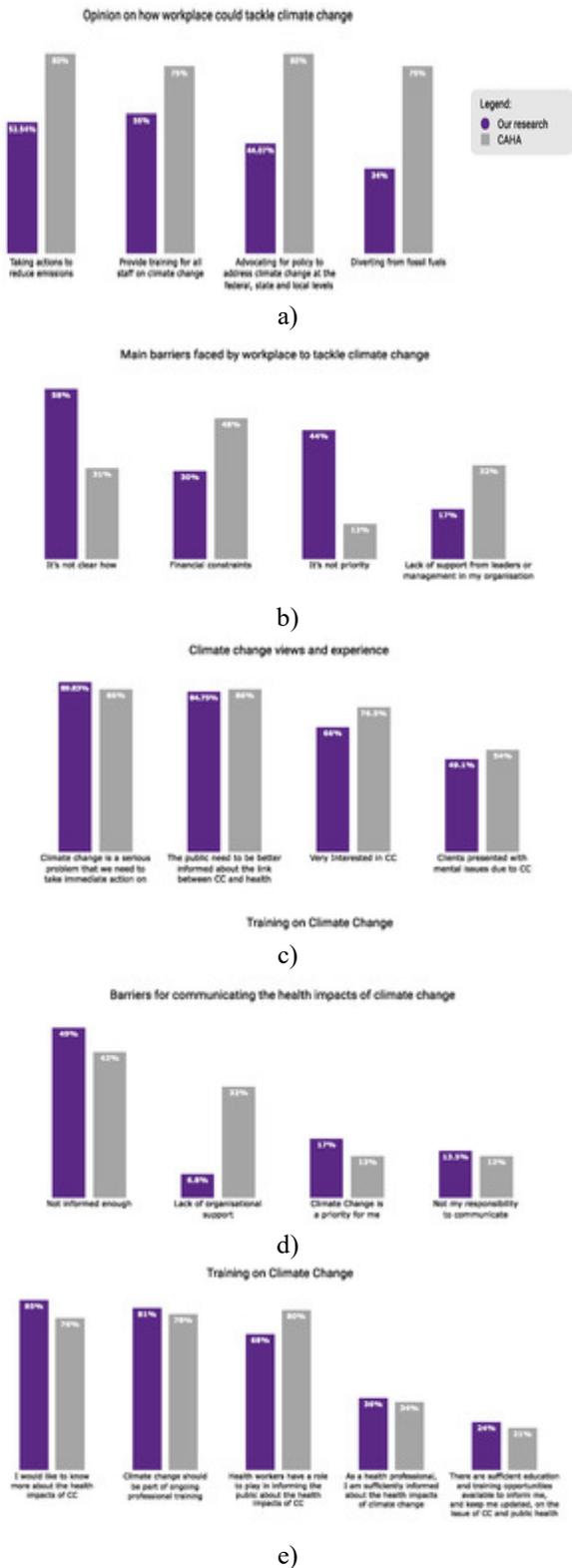
Workplace Climate Action	N (%)
Taking steps to reduce emissions	31 (52.5)
Advocating for climate policies at federal, state, and local levels	26 (44)
Transitioning away from fossil fuels	20 (33.9)
Offering climate change training for all staff	33 (55.9)
Providing information or guidance to help the public adopt climate-friendly behaviors	33 (55.9)
Supporting the population in coping with climate change	36 (61)
Belief that it is not the organisation's role to address climate change	10 (17)

A significant relationship was observed between participants' decision-making authority and whether climate change initiatives were implemented at their workplace, with those having no decision-making power or only influence over personal matters being more likely to report the absence of climate actions ( $\chi^2 = 4.33$ ,  $df = 1$ ,  $p = 0.03$ ). Notably, 14 participants (58%) who held full decision-making responsibility within their organisation or team indicated that no climate-related measures were in place. One participant described workplace policies addressing climate-driven events:

"We now have policies for managing severe weather, ensuring both clients and the community have plans to maintain service continuity, with fostering resilience as our priority."

Participants who viewed climate change as requiring urgent action were more likely to identify lack of political will as a workplace barrier ( $\chi^2 = 14.85$ ,  $df = 4$ ,  $p < 0.01$ ). While only five participants (8.5%) considered advocating for climate action ethically inappropriate, 27 (46%) reported feeling uncomfortable doing so. Furthermore, 33 participants (56%) indicated being somewhat or very likely to promote climate action in their local community, 29 (49%) were somewhat or very likely to support the development of workplace climate risk plans, and 33 (56%) expressed willingness to advocate for emission reduction within their organisation.

Overall, participants' knowledge, training needs, and perceptions of climate change aligned closely with other Australian healthcare professionals [23]. However, there was a notable divergence between the two groups regarding views on how workplaces could contribute to tackling climate change, as illustrated in **Figure 3**.



**Figure 3.** Comparison of findings between the climate and health alliance survey (n = 875) of physicians, nurses, midwives, public health

professionals, and medical students, and the current study of Australian psychologists (n = 59) regarding perceptions and experiences of climate change.

Research exploring healthcare professionals' experiences and attitudes toward the complex interplay between climate change and health remains limited. Participants in the current research overwhelmingly agreed that climate change poses significant health risks and reported that their formal education on the topic was insufficient, echoing findings from previous studies [15, 23].

Australia frequently experiences environmental disasters. In the twelve months prior to this survey, severe floods impacted millions of people across various regions [31, 32], with nearly half of the participants personally affected by such climate-driven events. While half of the psychologists surveyed recognized climate-related effects on their clients' health, around 30% were uncertain. Considering the high prevalence of climate-related mental health issues in Australia [5, 33], combined with participants' strong calls for more education and their reluctance to engage clients in climate-related discussions, questions arise about whether these responses truly reflect the scope of climate-linked mental health concerns. This concern is heightened by similar studies involving other healthcare professionals, which reported higher rates of recognizing mental health impacts due to climate change [15, 23].

Most participants lacked sufficient knowledge regarding climate-health impacts, potentially explaining the lower reported recognition of climate-related mental distress, particularly given the widespread effects of the 2022 Australian floods. Despite this gap in training and expertise, many psychologists indicated feeling confident in identifying and managing climate-related mental health issues. This presents a concern, as professional standards require psychologists to engage in self-reflection that informs ongoing learning and professional development [34]. Although research in this field is still emerging, with notable gaps in evidence-based prevention and intervention strategies, the role of psychologists in addressing the climate crisis extends well beyond clinical practice [3, 24–26, 35].

Integrating climate change into health professional curricula has been discussed for some time, yet evidence indicates that current implementation lags behind the urgent demands of the climate crisis [18]. With mental health service needs projected to rise, professional

associations and training institutions have a critical opportunity to equip psychologists to actively contribute to climate action. Psychologists hold an ethical duty to safeguard lives, while training bodies and professional organisations carry a moral responsibility to guide members in becoming proactive role models during this global crisis [24].

A major limitation of this study is the small sample size, despite significant recruitment efforts. Contributing factors may include survey fatigue, limitations in recruitment strategies, or limited interest in climate change among Australian psychologists. Consequently, these findings cannot be generalised to the wider population. Nevertheless, the study sheds light on key aspects of the topic and provides a foundation to inform future research.

Our results indicate that the surveyed Australian psychologists appear less engaged with climate action compared to other healthcare professionals in Australia [23]. Even though participants recognised the severity of the climate crisis, many considered it unethical to initiate discussions about climate change with clients, possibly reflecting a perception that the topic is highly politicised and sensitive within professional contexts, consistent with prior research [15]. This politicisation may have influenced participation rates, raising the question of whether alternative terminology—such as “environmental sustainability,” “sustainable healthcare,” or “planetary health,” used in similar studies [36]—might yield different levels of engagement, a hypothesis worth exploring in future research.

Healthcare professionals have an ethical obligation to prevent harm. The healthcare sector contributes substantially to global emissions—between 1% and 5% worldwide [16], and 7% within Australia alone [37]. Given the detrimental health impacts of climate change, avoiding mitigation efforts contradicts the principles of planetary health and public health responsibility. By engaging in climate action and highlighting its health consequences, psychologists can better identify and address climate-related mental health challenges, while fostering resilience in clients and communities [38].

Encouragingly, only a small proportion of participants (8%) viewed advocating for climate action as unethical, and approximately half reported being somewhat or highly likely to promote climate initiatives aimed at protecting public health. This suggests that framing climate change as a health issue facilitates its integration into professional education and increases the likelihood

of psychologists participating in mitigation and prevention efforts [18, 39].

This study contributes to the growing evidence on healthcare professionals’ understanding and experiences of climate-related mental health. Future research should examine the effectiveness of educational interventions, explore how ethical concerns influence psychologists’ engagement with climate topics, and investigate the roles of professionals working exclusively in private practice in addressing public health challenges.

## Conclusion

Healthcare providers are increasingly called upon to act as health advocates in the context of climate change. While some progress has been made, substantial gaps remain. Our survey demonstrates that, despite recognising the importance of the climate crisis and its health implications, Australian psychologists are largely unprepared and insufficiently engaged with climate change. Key barriers—namely, limited knowledge and ethical concerns regarding client discussions—can be addressed through targeted education. Professional organisations and training institutions have a vital role in enhancing training, framing climate change as a pressing health issue, and enabling psychologists to become active contributors to climate action.

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## References

1. Charlson, F.; Ali, S.; Benmarhnia, T.; Pearl, M.; Massazza, A.; Augustinavicius, J.; Scott, J.G. Climate Change and Mental Health: A Scoping Review. *Int. J. Environ. Res. Public Health*. 2021, 18, 4486.
2. Corvalan, C.; Gray, B.; Villalobos Prats, E.; Sena, A.; Hanna, F.; Campbell-Lendrum, D. Mental health and the global climate crisis. *Epidemiol. Psychiatr. Sci.* 2022, 31, e86.
3. Crandon, T.; Dey, C.; Scott, J.; Thomas, H.; Ali, S.; Charlson, F. The clinical implications of climate

- change for mental health. *Nat. Hum. Behav.* 2022, 6, 1474–1481.
4. Crandon, T.; Scott, J.; Charlson, F.; Thomas, H. A social–ecological perspective on climate anxiety in children and adolescents. *Nat. Clim. Chang.* 2022, 12, 123–131.
  5. Patrick, R.; Snell, T.; Gunasiri, H.; Garad, R.; Meadows, G.; Enticott, J. Prevalence and determinants of mental health related to climate change in Australia. *Aust. N. Zealand J. Psychiatry* 2022, 57, 710–724.
  6. Feng, L.; Li, L.; Liu, W.; Yang, J.; Wang, Q.; Shi, L.; Luo, M. Prevalence of depression in myocardial infarction: A PRISMA-compliant meta-analysis. *Medicine* 2019, 98, e14596.
  7. Huang, C.W.; Wee, P.H.; Low, L.L.; Koong, Y.L.A.; Htay, H.; Fan, Q.; Foo, W.Y.M.; Seng, J. Prevalence and risk factors for elevated anxiety symptoms and anxiety disorders in chronic kidney disease: A systematic review and meta-analysis. *Gen. Hosp. Psychiatry* 2021, 69, 27–40.
  8. Wang, J.; Xiao, D.; Chen, H.; Hu, J. Cumulative evidence for association of rhinitis and depression. *Allergy Asthma Clin. Immunol.* 2021, 17, 111.
  9. Yeh, J.-J.; Lin, C.-L.; Hsu, W.-H.; Kao, C.-H. The relationship of depression in asthma-chronic obstructive pulmonary disease overlap syndrome. *PLoS ONE* 2017, 12, e0188017.
  10. Berry, H.L.; Waite, T.D.; Dear, K.B.; Capon, A.G.; Murray, V. The case for systems thinking about climate change and mental health. *Nat. Clim. Chang.* 2018, 8, 282–290.
  11. Li, A.; Toll, M.; Bentley, R. Mapping social vulnerability indicators to understand the health impacts of climate change: A scoping review. *Lancet Planet. Health* 2023, 7, e925–e937.
  12. Hallegatte, S.; Rozenberg, J. Climate Change through a Poverty Lens. *Nat. Clim. Chang.* 2017, 7, 250–256.
  13. Dupraz, J.; Burnand, B. Role of health professionals regarding the impact of climate change on health—An exploratory review. *Int. J. Environ. Res. Public Health* 2021, 18, 3222.
  14. Kotcher, J.; Maibach, E.; Miller, J.; Campbell, E.; Alqodmani, L.; Maiero, M.; Wyns, A. Views of health professionals on climate change and health: A multinational survey study. *Lancet Planet. Health* 2021, 5, e316–e323.
  15. Lenzen, M.; Malik, A.; Li, M.; Fry, J.; Weisz, H.; Pichler, P.P.; Chaves, L.; Capon, A.; Pencheon, D. The environmental footprint of health care: A global assessment. *Lancet Planet Health* 2020, 4, e271–e279.
  16. Maibach, E.; Miller, J.; Armstrong, F.; Omrani, O.; Zhang, Y.; Philpott, N.; Atkinson, S.; Rudolph, L.; Karliner, J.; Wang, J.; et al. Health professionals, the Paris agreement, and the fierce urgency of now. *J. Clim. Chang. Health* 2021, 1, 100002.
  17. Brennan, M.E.; Madden, D.L. The evolving call to action for including climate change and environmental sustainability themes in health professional education: A scoping review. *J. Clim. Chang. Health* 2023, 9, 100200.
  18. Pendrey, C.; Chanchlani, S.; Beaton, L.; Madden, D. Planetary health: A new standard for medical education. *Med. J. Aust.* 2023, 219, 512–515.
  19. Watts, N.; Amann, M.; Ayeb-Karlsson, S.; Belesova, K.; Bouley, T.; Boykoff, M.; Byass, P.P.; Cai, W.; Campbell-Lendrum, D.; Chambers, J.; et al. The Lancet Countdown on health and climate change: From 25 years of inaction to a global transformation for public health. *Lancet* 2018, 391, 581–630.
  20. Redvers, N.; Faerron Guzmán, C.A.; Parkes, M.W. Towards an educational praxis for planetary health: A call for transformative, inclusive, and integrative approaches for learning and relearning in the Anthropocene. *Lancet Planet. Health* 2023, 7, e77–e85.
  21. World Health Organization. Operational Framework for Building Climate Resilient and Low Carbon Health Systems; World Health Organization: Geneva, Switzerland, 2023; Available online: <https://www.who.int/publications/i/item/9789240081888> (accessed on 25 January 2024).
  22. Climate Council. One in 25 Australian Homes Uninsurable by 2030: Climate Council Launches Cutting Edge Digital Climate-Risk Map 2022. Available online: <https://www.climatecouncil.org.au/resources/australian-homes-uninsurable-2030-climate-risk-map/> (accessed on 3 May 2022).
  23. Climate and Health Alliance. Real, Urgent & Now: Insights from Health Professionals on Climate and Health in Australia. September 2021. Available online: [https://www.caha.org.au/caha\\_reports](https://www.caha.org.au/caha_reports) (accessed on 31 May 2022).

24. The British Psychological Society. Division of Clinical Psychology—Climate Change: The British Psychological Society. 2022. Available online: <https://www.bps.org.uk/member-networks/division-clinical-psychology/climate-change> (accessed on 21 May 2022).
25. American Psychological Association. Resolution on Affirming Psychologists' Role in Addressing Global Climate Change Washington: American Psychological Association. 2011. Available online: <https://www.apa.org/about/policy/climate-change> (accessed on 31 May 2022).
26. Australian Psychological Society. Psychology and Climate Change, Position Statement. Melbourne: Psychology Board of Australia. 2020. Available online: [https://psychology.org.au/getmedia/c876613b-7f96-4456-8975-1a82190ec1d2/20aps-position\\_statement-psychology\\_climate-change.pdf](https://psychology.org.au/getmedia/c876613b-7f96-4456-8975-1a82190ec1d2/20aps-position_statement-psychology_climate-change.pdf) (accessed on 31 May 2022).
27. Psychology Board of Australia. Registration Standard: General Registration; Psychology Board of Australia, Ed.; Psychology Board of Australia: Melbourne, Australia, 2016. Available online: <https://www.psychologyboard.gov.au/Standards-and-Guidelines/Registration-Standards.aspx> (accessed on 31 May 2022).
28. Psychology Board of Australia. Registration Data; Reporting Period: 1 July 2022 to 30 September 2022; Melbourne, Australia; 2022. Available online: <https://www.psychologyboard.gov.au/About/Statistics.aspx> (accessed on 27 January 2024).
29. Australian Psychological Society. APS Update—Your Weekly News from the APS; Stilita, G., Ed.; Australian Psychological Society: Melbourne, Australia, 2021.
30. Climate and Health Alliance. CAHA Member Update; Climate and Health Alliance: Melbourne, Australia, 2022.
31. Bureau of Meteorology. Special Climate Statement 76—Extreme Rainfall and Flooding in South-Eastern Queensland and Eastern New South Wales. Bureau of Meteorology, 2022. Available online: <http://www.bom.gov.au/climate/current/statements/scs76.pdf?20220525> (accessed on 25 May 2022).
32. Thousands under Flood Evacuation Orders across Victoria, New South Wales and Tasmania. ABC News, 14 October; 2022.
33. Climate Council. Climate Trauma: The Growing Toll of Climate Change on the Mental Health of Australians. Climate Council of Australia Limited, 2023. Available online: <https://www.climatecouncil.org.au/resources/climate-trauma/> (accessed on 31 May 2022).
34. Psychology Board of Australia. Fact Sheet for Continuing Professional Development; Psychology Board of Australia: Melbourne, Australia, 2015. Available online: <https://www.psychologyboard.gov.au/Standards-and-Guidelines/FAQ.aspx#> (accessed on 24 January 2024).
35. Monsell, A.; Krzanowski, J.; Page, L.; Cuthbert, S.; Harvery, G. What mental health professionals and organisations should do to address climate change. *BJPsych Bull.* 2021, 45, 215–221.
36. Lister, H.E.; Mostert, K.; Botha, T.; van der Linde, S.; van Wyk, E.; Rocher, S.-A.; Laing, R.; Wu, L.; Müller, S.; des Tombe, A.; et al. South African Healthcare Professionals' Knowledge, Attitudes, and Practices Regarding Environmental Sustainability in Healthcare: A Mixed-Methods Study. *Int. J. Environ. Res. Public Health* 2022, 19, 10121.
37. Malik, A.; Lenzen, M.; McAlister, S.; McGain, F. The carbon footprint of Australian health care. *Lancet Planet. Health* 2018, 2, e27–e35.
38. Kreslake, J.M.; Sarfaty, M.; Roser-Renouf, C.; Leiserowitz, A.A.; Maibach, E.W. The critical roles of health professionals in climate change prevention and preparedness. *Am. J. Public Health* 2017, 108, S68–S69.
39. Hathaway, J.; Maibach, E.W. Health implications of climate change: A review of the literature about the perception of the public and health professionals. *Curr. Environ. Health Rep.* 2018, 5, 197–204.