International Journal of Disaster Risk Reduction 117 (2025) 105195

Contents lists available at ScienceDirect

International Journal of Disaster Risk Reduction

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

Mental health, wellbeing, and burnout among practicing psychologists following Australian weather disasters and COVID-19

Emily Macleod [a,b,*], Sonia Curll [a,b], Iain Walker [c], Tegan Cruwys [a], Lisa-Marie Greenwood [a], Julia Reynolds [a], Jo Lane [d], Connie Galati [e], Bruce Christensen [a], Alison L. Calear [b]

[a] School of Medicine and Psychology, Australian National University, Acton, ACT, 2601, Australia
[b] Centre for Mental Health Research, Australian National University, Acton, ACT, 2601, Australia
[c] Melbourne Centre for Behaviour Change, University of Melbourne, VIC, Australia
[d] Practising clinical psychologist, Australian Capital Territory, Australia
[e] Practising clinical psychologist, New South Wales, Australia

A R T I C L E I N F O

Keywords:
Psychologists
Burnout
Disasters
Mental health
Wellbeing
COVID-19

A B S T R A C T

Background: From late 2019, multiple extreme weather events and the COVID-19 pandemic increased the need for psychological services in Australia. Little is known about the concomitant impact on the psychologists delivering these services. This study aimed to assess the consequences of disasters on psychologists' mental health and wellbeing and identify modifiable risk and protective factors to inform strategies to safeguard this critical workforce.
Method: In 2022, 469 registered Australian psychologists completed an online survey assessing the impacts of recent disasters (i.e., COVID-19, bushfires, floods, severe storms), perceived barriers to self-care (e.g., time, cost), occupational self-efficacy (OSSF-SF), burnout (BM-S), depression (PHQ-9), anxiety (GAD-7), and wellbeing (WHO-5).
Results: A substantial minority of psychologists were experiencing probable work burnout (26.4 %), depression (11.5 %), anxiety (10.2 %), and low personal wellbeing (47.2 %). Compared to those impacted by COVID-19 only, psychologists personally impacted by weather disaster (n = 99) reported significantly higher burnout (d = .36), anxiety (d = .36), and lower wellbeing (d = −.37). They also reported higher negative impacts of COVID-19 (d = .59). The relationships between total disaster impact and mental health outcomes were partly mediated by perceiving more barriers to self-care. Moderated mediation analyses indicated that self-efficacy mitigated the negative effects of barriers to self-care on burnout, depression, and anxiety, but not on wellbeing.
Conclusions: Findings suggest that experiencing multiple disasters has a compounding effect on psychologists' professional and personal wellbeing. With climate change increasing disaster exposure, mitigation efforts could support practitioners by reducing barriers to self-care and strengthening occupational self-efficacy.

* Corresponding author. Centre for Mental Health Research, Australian National University, Acton, ACT, 2601, Australia.
E-mail addresses: Emily.Macleod@anu.edu.au (E. Macleod), Sonia.Curll@anu.edu.au (S. Curll), Iain.Walker@unimelb.edu.au (I. Walker), Tegan.Cruwys@anu.edu.au (T. Cruwys), Lisa.Greenwood@anu.edu.au (L.-M. Greenwood), Julia.Reynolds@anu.edu.au (J. Reynolds), Jo.Lane@anu.edu.au (J. Lane), Connie.Galati@gmail.com (C. Galati), Bruce.Christensen@anu.edu.au (B. Christensen), Alison.Calear@anu.edu.au (A.L. Calear).

https://doi.org/10.1016/j.ijdrr.2025.105195
Received 4 December 2023; Received in revised form 6 January 2025; Accepted 8 January 2025
Available online 10 January 2025

1. Introduction

Since late 2019, Australia has experienced a series of disasters, including widespread bushfires, flooding, severe storms, and the COVID-19 pandemic. These have greatly increased mental health concerns, the demand for mental health services, made mental health concerns more complex, and changed mental health service delivery [1–3]. As a result, mental health workers have experienced considerable pressure to meet community needs, while also managing the impacts of disasters on their professional and personal lives [1,4].

Psychologists are the largest group of specialist mental health workers in Australia, with over 36,000 currently practising across public and private practice settings [5]. The emotionally demanding nature of psychologists' work, combined with heavy workloads, place psychologists at risk of psychological distress and burnout which may in turn increase the risk of mental health difficulties [6,7]. Indeed, emerging evidence suggests that psychologists may experience higher rates of mental health problems than the general population [8,9]. This adversely affects the individual psychologists, and potentially also their clients, colleagues, and the wider mental health system [10,11].

Approaches to preventing burnout include structural and organisational interventions (e.g., resource and workload management) as well as individual self-care practices to support personal resilience and professional practice. Despite their expertise in self-care and coping [12], a range of pressures such as lack of time, financial cost and accessibility of suitable help may discourage psychologists from addressing their own mental health needs (e.g. [13]). Psychologists practising during and after disasters may be especially vulnerable to burnout and mental health issues. Psychologists providing services to disaster-affected communities have an increased risk of secondary traumatic stress, vicarious trauma, and burnout [6,14], which involves physical, emotional, and cognitive exhaustion related to work [15]. In the context of the COVID-19 pandemic, high rates of burnout and mental health symptoms have been identified among healthcare professionals [16–18], including in Australia [14,15]. However, few studies have focused on psychologists, and little is known about the effects of experiencing multiple disasters. With the frequency and severity of pandemics and weather-related disasters expected to increase [19], a more nuanced understanding of burnout and wellbeing among psychologists in disaster contexts is urgently needed.

Job-Demands Resources (JDR) theory describes how the combination of high job demands (e.g., workload, work complexity) and low job resources (e.g., supervision, training) can lead to work burnout and negative health outcomes [20]. Extending JDR theory to crisis contexts, Demerouti and Bakker [21] emphasise the importance of going beyond job characteristics to consider the role of nonwork (family and personal) demands and resources; because time and energy are finite resources, the interplay between demands and resources from various life domains may better explain how individuals respond to disasters and other crisis events.

The JDR approach implies that psychologists' risk of burnout and mental health concerns is related to the multiple demanding roles they hold in disasters [21]. That is, in addition to providing vital psychological care to clients and the community, psychologists must manage the impact of disasters on their personal and family lives, including those related to caring responsibilities, property damage, and financial stress. Consequently, psychologists continually regulate their time and energy across multiple life domains, which may be especially challenging during periods of multiple disasters. Although research has begun to investigate the psychological impact of disasters on mental health workers [22], the roles of personal demands and resources are under-explored.

Self-care is widely recognised as fundamental to psychologists' wellbeing [23]. Psychologist self-care encompasses physical (e.g., exercise), emotional (e.g., social support), psychological (e.g., self-compassion, mindfulness), and professional (e.g., job crafting) strategies used to relieve psychological distress and promote positive wellbeing [24–26]. Many studies have demonstrated the benefits of self-care for psychologists, including preventing burnout [23].

Practising self-care is likely to be especially important in times of high demand, such as disaster contexts [27]. In disasters, however, barriers to self-care (e.g., time, energy) are also likely to be higher, making it more difficult for psychologists to prioritise their own mental health [21]. Hence, we propose that a key pathway through which disasters may undermine psychologists' wellbeing is by creating higher barriers to self-care.

In addition to understanding how disasters undermine professional and personal wellbeing, it is important to identify modifiable risk and protective factors to design effective strategies to support the psychology workforce in disaster contexts. JDR theory proposes that individuals are better able to manage crisis situations when they have ample personal resources (e.g., self-esteem, self-efficacy, optimism); these resources are thought to generate motivation that can enhance work engagement and protect individuals from negative outcomes in situations of high demands and low resources [28].

Occupational self-efficacy is a personal resource that reflects an individual's confidence in their ability to handle job-specific tasks and cope with work-related challenges [29]. Occupational self-efficacy has the potential to be modified through efforts at all levels of the system in which psychologists work (individual, organisational, policy [30]). Occupational self-efficacy may be an especially important personal resource in psychologists due to the inherent psychosocial risks associated with mental health work (e.g., vicarious trauma). Self-efficacy beliefs could also act as a motivating mechanism through which psychologists perceive their own competence levels on the job. Specifically, we propose that psychologists with higher occupational self-efficacy may be better equipped to manage increased barriers to self-care and maintain professional and personal wellbeing in disaster contexts.

Over the 2019/2020 summer, Australia experienced extensive bushfires that killed 33 people, burned 24 million hectares of land, and damaged or destroyed property, infrastructure, livelihoods, and ecosystems [31]. The fires were followed by widespread storms and flooding, particularly on the east coast in early 2021, impacting over 14 million people via further deaths, displacement, disruption, and loss [32]. From early 2020, the COVID-19 pandemic also disrupted millions of Australians' lives via public health restrictions and ongoing impacts to health, livelihoods, and lifestyle [1].

1.1. Current study

The current study surveyed Australian psychologists who had practised during a three-year period (late 2019 to late 2022) that encompassed the COVID-19 pandemic and multiple extreme weather events (EWEs). Our aims were to explore the impact of multiple disasters on Australian psychologists, investigate the relationships between personal disaster impact and professional and personal wellbeing, and identify modifiable risk and protective factors in these relationships.

Four key outcomes were assessed: burnout, depression, anxiety, and wellbeing. We used a measure of work burnout focusing on exhaustion because this is the most common component of burnout experienced among psychologists [33]. We measured symptoms of both depression and anxiety as key indicators of psychological distress (mental health and burnout are correlated, but separate constructs; [34–36]). Finally, we measured wellbeing to capture positive aspects of mental health, which is an important but often ignored facet of mental health [37,38]. As shown in Fig. 1, it was hypothesised that:

H1. experiencing more personal disaster impacts would be associated with higher work burnout, depression, anxiety, and lower personal wellbeing,

H2. the relation between personal disaster impacts and mental health and wellbeing would be mediated by increased barriers to self-care, and

H3. the effect of personal disaster impact on mental health and wellbeing via increased barriers to self-care would be moderated by occupational self-efficacy, such that it would be weaker among those with higher levels of self-efficacy (i.e., a buffering effect).

2. Method

2.1. Participants and procedure

Psychologists were eligible to participate if they were registered with the Australian Health Practitioners Regulation Agency (Ahpra) and practising at any time between August 2019 and December 2022. A convenience sample was recruited between November and December 2022. Invitations were disseminated via social media posts (Facebook, LinkedIn, Twitter), professional psychology representative body emails and newsletters (reaching an estimated 30,000 of the ~40,000 eligible psychologists), and other professional contacts. In total, 469 psychologists participated in the online survey via Qualtrics. Participants who completed the survey could win one of four $50 e-giftcards. The ethical aspects of this study were approved by the Australian National University Human Research Ethics Committee (2020/591).

2.2. Measures

The measures reported here were part of a larger survey [39]. Demographic and work characteristics were collected (i.e., age, gender, state, remoteness, years of practice, area of endorsement, work status, and work sector).

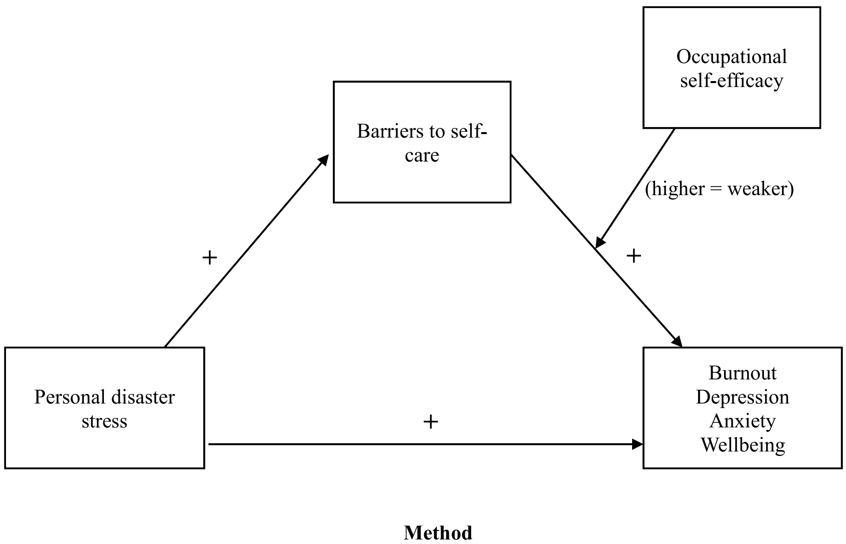

Fig. 1. Proposed model of the relationships between personal disaster impact, barriers to self-care, occupational self-efficacy, and mental health outcomes among psychologists.

Table 1
Characteristics of psychologists surveyed (N = 443).

	N	%
Gender		
Male	75	16.9
Female	363	81.9
Non-binary or declined	5	1.2
Age (years)		
23–34	60	13.5
35–44	107	24.2
45–54	121	27.3
55–64	90	20.3
65–74	50	11.3
75+	15	3.4
State or Territory		
ACT	30	6.8
NSW	123	27.8
NT	2	.5
Qld	60	13.5
SA	33	7.4
Tas	10	2.3
Vic	130	29.3
WA	55	12.4
Location (remoteness)		
Major city	296	66.8
Inner regional	96	21.7
Outer regional/remote	48	10.8
Missing	3	.7
Years of practice		
0–4	59	13.3
5–10	95	21.4
11–15	72	16.3
16–20	62	14.0
21–25	62	14.0
26–30	37	8.4
30+	56	12.6
Work status		
Full-time	235	53.0
Part-time	179	40.4
Casual/Other	28	6.4
Missing	1	.2
Area of Practice Endorsement[a]		
Clinical Neuropsychology	8	1.8
Clinical	223	50.3
Community	4	.9
Counselling	27	6.2
Education and Developmental	11	2.5
Forensic	10	2.3
Health	9	2.0
Organisational	12	2.7
Sport and Exercise	2	.5
General registration	161	36.4
Sector[a]		
Private		
Sole trader or partnership	261	58.9
Employer	30	6.8
Contractor	71	16.0
Employee	30	6.8
Public		
Hospital	29	6.5
Community mental health	30	6.8
Government/Policy	33	7.2
Non-Government Organisation	17	3.8
Not For Profit	16	3.6
Education and Research		
Primary/Secondary	18	4.1
Tertiary	31	7.0

[a] Participants could select multiple options.

2.2.1. Disaster impact

Participants indicated whether they had been personally impacted by each of the following disasters since late 2019: COVID-19, the 2019/20 bushfire season, subsequent bushfires, flooding, or severe storms. For each endorsed event, participants reported the degree to which they were negatively impacted across nine life domains (i.e., child caring, other caring, capacity to work, mental wellbeing, physical health, accommodation, personal relationships, financial stress, personal property (except COVID-19)) on a 4-point scale (plus n/a option): 0 (*no negative impact*), 1 (*mild negative impact*), 2 (*some negative impact*), 3 (*significant negative impact*). The domains were developed for the study, drawing from relevant literature regarding disaster impacts [40–42] and further information about scale development is provided in Supplementary Materials (p1). A COVID-19 impact score (possible range 0–24, $\alpha = .86$) and an impact score for each type of EWE (2019/20 bushfires, subsequent bushfires, flooding, and severe storms) (possible range 0–27; $\alpha = .80 - .93$) was calculated based on the sum of the items relating to each event. The five event impact scores were then summed to create a total disaster impact score (possible range 0–132; $\alpha = .89$). A principal component factor analysis supported the unique contribution of each disaster to the scale (Supplementary Materials, p3).

2.2.2. Outcomes

All pre-existing outcome measures were chosen because they are widely used and have good psychometric properties. Each was scored in line with scale developer guidelines, to allow for comparison to recommended empirical categories.

Burnout. The 10-item Burnout Measure – Short Version [BM-S] ([43], $\alpha = .85 - .92$) was used to assess burnout. This scale focuses on characteristics of burnout related to physical, emotional, and mental exhaustion. Participants were asked to indicate how often they feel symptoms of burnout when they think about work (e.g., "tired", "disappointed with people", "hopeless") on a scale of 1 (*never*) to 7 (*always*). BM-S mean scores (possible range 1–7; $\alpha = .89$) were used in the analyses, with higher scores reflecting greater burnout.

Anxiety. The Generalised Anxiety Disorder 7 [GAD-7] scale ([44], $\alpha = .92$) assessed self-reported symptoms of anxiety. Participants indicated how often they had been bothered by seven symptoms or experiences (e.g., "trouble relaxing") in the past two weeks, on a scale from 0 (*not at all*) to 3 (*nearly every day*). Total scale scores (possible range 0–21; $\alpha = .86$) were used in the analyses, with higher scores indicative of greater anxiety.

Depression. The Patient Health Questionnaire [PHQ-9] ([45], $\alpha = .86$-$.89$) assessed self-reported symptoms of depression. Participants indicated how often they had been bothered by nine symptoms or experiences (e.g., "little interest or pleasure in doing things") in the past two weeks, on a scale from 0 (*not at all*) to 3 (*nearly every day*). Total scale scores (possible range 0–27; $\alpha = .82$) were used in the analyses, with higher scores reflecting greater depression.

Wellbeing. The World Health Organisation 5 Wellbeing Index [WHO-5] ([46]; validity demonstrated by [47]) was used to measure subjective wellbeing. Participants responded to five statements about how they have felt in the past two weeks (e.g., "I have felt cheerful and in good spirits") on a scale from 0 (*at no time*) to 5 (*all of the time*). A percentage score (0 = worst possible wellbeing to 100 = best possible wellbeing [47]), was used in the analyses ($\alpha = .88$).

Self-Care Barriers. A bespoke measure was developed for the study, asking participants to rate how much each of the following were currently barriers to engaging in self-care from 0 (*not a barrier*) to 3 (*major barrier)*: time, cost, mental space, accessibility, motivation, organisation support. Scores were summed to create a total score reflecting perceived barriers to self-care (possible range 0–18). Higher scores indicated higher barriers to self-care ($\alpha = .75$).

Occupational Self-Efficacy. The 5-item Occupational Self-Efficacy Scale – Short Form [OSSF-SF] ([29]; $\alpha = .85$-$.90$) was used to assess occupational self-efficacy. Participants rated how true each statement (e.g., "I feel prepared for most of the demands in my job") was of them on a scale of 1 (*not true at all*) to 6 (*completely true*). OSSF-SF mean scores were calculated (scale range 1–6; $\alpha = .87$).

2.3. Analysis

Data were analysed using SPSS version 29 and PROCESS version 4.2. Descriptive statistics and independent samples t-tests were used to examine group differences in key outcomes between psychologists affected by EWEs and those not affected by EWEs. Bivariate associations were assessed to estimate the relationships between key variables (H1). Simple mediation models were estimated for each outcome using PROCESS model 4 (H2). Finally, moderated mediation models were estimated for each outcome using PROCESS model 14 (H3). To explore potential confounding effects, models were estimated with and without years' experience as a covariate, because previous research has found that years' experience is positively related to professional and personal wellbeing and use of self-care strategies among psychologists [10,34,48]. 95th percentile bootstrap confidence intervals were calculated based on 5000 samples. Less than 5 % of data was missing. Little's Missing Completely at Random (MCAR) test was not significant, $\chi 2$ 15.135, DF = 14, p = .37, so listwise deletion was used to manage missing data. Consequently, the N differs for each analysis.

3. Results

3.1. Participant characteristics

Participants who had not completed the four outcome measures ($n = 26$) were excluded from the analyses, leaving a final sample of $N = 443$. As shown in Table 1, 82 % were female, reflecting the well-described overrepresentation of females in the psychology profession in Australia [49]. The mean age of participants was 49.8 years ($SD = 13.13$), slightly older than the psychologist national average of 44 years. Most participants (66.8 %) lived in a major city, in line with national workforce data [49].

Psychologists reported practising for an average of 17.4 years ($SD = 11.83$), indicating an experienced sample. Just over half (53.0

%) worked full-time, 40.4 % worked part-time, and the remainder worked in casual or other arrangements. A higher proportion of respondents worked in the private sector (88.5 %) compared to national estimates (approximately 64 %) [50]. Less than 20 % of the sample worked in the public or education sectors, and less than 10 % worked in non-government or not-for-profit organisations (note some participants worked across multiple sectors). Half held a clinical psychologist endorsement (higher than the national average of 31.9 %) [5], 36.4 % were generally registered, and 18.9 % held other specialty endorsements.

3.2. Descriptive statistics and correlations

Descriptive statistics and bivariate relationships between key variables are presented in Table 2. As expected (H1), personal disaster impact was significantly positively correlated with burnout, depression, and anxiety and significantly negatively correlated with wellbeing.

3.2.1. Impact of disasters

Almost one quarter of participating psychologists (22.5 %) were personally impacted by EWEs (defined as reporting 'some' or 'significant' negative impact on at least one life domain from an EWE), including bushfires (9.7 %), floods (9.3 %), and severe storms (10.4 %). Seventy-three participants were impacted by one type of EWE, 21 were impacted by two types of EWEs, and 5 were impacted by all three types of EWEs. See Supplementary Materials (Table S1) for reported frequencies of impact on each life domain by disaster type.

3.2.2. Self-care barriers

Almost all (97 %) participants experienced barriers to self-care. Time was the main barrier to self-care, with 82 % reporting time as a moderate or major barrier, followed by cost (54 %), mental energy (53 %), motivation (38 %), organisational support (32 %), and accessibility (28 %).

3.2.3. Mental health of psychologists

As shown in Table 3, 26.5 % of participating psychologists reported scores indicative of work burnout, and 34.3 % were in danger of burnout. Nearly half (47.2 %) reported low personal wellbeing, while a substantial minority met the cut-off scores for probable diagnosis of major depressive disorder (11.5 %) or generalised anxiety disorder (10.2 %).

A binary variable was created to categorise participants as impacted by an EWE ("some" or "significant" impact of at least one EWE on at least one life domain), or not impacted by an EWE. Table 3 shows that psychologists who had been personally impacted by an EWE had consistently higher symptoms of burnout, depression, and anxiety, as well as consistently lower wellbeing scores, compared to those who had not been impacted by an EWE. A series of independent samples t-tests (using the Bonferroni-adjusted critical alpha = .01) confirmed that the EWE impacted group reported significantly higher COVID-19 impact ($p < .001$, $d = .59$), burnout ($p = .002$, $d = .36$), and anxiety ($p = .002$, $d = .36$), and significantly lower personal wellbeing ($p < .001$, $d = -.37$), compared to those who were not affected by an EWE. The difference in depression was not significant ($p = .026$, $d = .25$) (see Supplementary Materials, Table S2, for full results).

3.3. Mediation analyses

Although our outcomes measures are correlated among themselves, so tests on each are not statistically independent of the tests on the others, for clarity, and to align with existing literature, we analysed models for each outcome separately. Four simple mediation models were conducted to test if the relation between total disaster impact (continuous score) and each outcome (burnout, depression, anxiety, wellbeing) would be mediated by increased barriers to self-care (H2). Fig. 2 shows summary results. Consistent with H2, the point estimate of the indirect effect of disaster impact on each mental health outcome via self-care barriers was significant: burnout $B = .13$, $SE = .02$, CI [.09, .17], depression $B = .11$, $SE = .02$, CI [.07, .15], anxiety $B = .10$, $SE = .02$, CI [.06, .14], wellbeing $B = -.10$, SE

Table 2
Descriptive statistics and bivariate correlations between key variables.

	1	2	3	4	5	6	7	8
1. Years' experience								
2. Disaster impact	−.11*							
3. Self-efficacy (OSSF-SF)	.21***	−.18***						
4. Self-care barriers	−.26***	.30***	−.35***					
5. Burnout (BM-S)	−.10*	.31***	−.47***	.48***				
6. Depression (PHQ-9)	−.13**	.27***	−.34***	.40***	.58***			
7. Anxiety (GAD-7)	−.16***	.31***	−.30***	.39***	.57***	.75***		
8. Wellbeing (WHO-5)	.14**	−.26***	.41***	−.39***	−.55***	−.67***	−.58***	
N	443	443	442	431	443	443	443	443
Mean	17.39	10.07	4.74	8.64	2.77	4.40	3.27	50.49
SD	11.83	10.65	.78	3.82	.96	4.00	3.43	20.95
Range	1–58 yrs	0–61	2.2–6	0–18	1–6.9	0–24	0–20	8–100

***$p < .001$, **$p < .01$, *$p < .05$.

Table 3
Percentage of psychologists meeting cut-offs for categories of burnout, depression, anxiety, and wellbeing.

Scale	Category*	No EWE (%)	EWE (%)	Full sample (%)	Difference
Burnout (BM-S)[43][a]	Danger Signs (2.5–3.4)	31.7	43.4	34.3	
	Burn Out (3.4+)	25.0	31.3	26.5	$X^2(2) = 10.64$, $p = .005$, Phi = .16
Depression (PHQ9)[45][b]	Mild (5–9)	24.4	38.4	27.5	
	Moderate-severe (10+)	10.5	15.2	11.5	$X^2(2) = 11.30$, $p = .004$, Phi = .16
Anxiety (GAD7)[44][c]	Mild (5–9)	19.2	28.3	21.2	
	Moderate-severe (10+)	5.2	10.1	6.3	$X^2(2) = 9.95$, $p = .019$, Phi = .13
Wellbeing (WHO5)[47][d]	Low wellbeing (<50)	43.3	60.6	47.2	$X^2(1) = 9.22$, $p = .002$, Phi = .14
	Diagnosis#				
Depression[45][e]	Major Depressive Disorder (10+)	10.5	15.2	11.5	$X^2(1) = 1.66$, $p = .198$, Phi = .06
Anxiety[44][f]	Generalised Anxiety Disorder (8+)	8.7	15.2	10.2	$X^2(1) = 3.48$, $p = .062$, Phi = .09
	At least one probable diagnosis	13.4	22.2	15.3	$X^2(2) = 4.63$, $p = .031$, Phi = .10

Note.
*Category cut-off scores (shown in brackets) defined by scale authors.
#Diagnostic cut-off scores (shown in brackets) defined by scale authors.
[a] BM-S [43].
[b] PHQ-9 [45].
[c] GAD-7 [44].
[d] WHO5 [47,51].
[e] [52].
[f] [53].

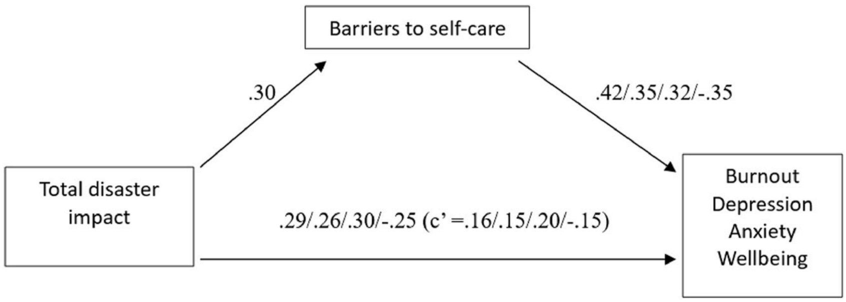

Fig. 2. The mediating effect of barriers to self-care on the relationship between disaster impact and mental health (burnout, depression, anxiety, and wellbeing).
Note. Values are standardised regression coefficients. All estimates are significant ($p < .05$). For the final models, $R^2 = .09/.07/.09/.06$.

= .02, CI [-.14,-.07]. We also ran each model controlling for years' experience; all significant direct, indirect, and total effects remained (see Table S3 in the Supplementary Materials for full results).

3.4. Moderated mediation analyses

Table 4 presents regression results for the four moderated mediation models testing the effect of personal disaster impact on mental

Table 4
Regression results testing moderated mediation of the relationship between disaster impact and mental health via barriers to self-care.

	R^2	Disaster impact	Self-care barriers	Self-efficacy	Barriers x self-efficacy	Index of moderated mediation		
						Index	CI LL	CI UL
Burnout	.36	.13**	.34***	−.30***	−.13***	−.005	−.008	−.002
Depression	.24	.13**	.30***	−.20***	−.13**	−.017	−.034	−.003
Anxiety	.23	.18***	.28***	−.16***	−.12**	−.015	−.028	−.003
Wellbeing	.25	−.13**	−.24***	.31***	−.02	−.018	−.092	.045

Note. Standardised estimates are presented. Barriers to self-care and self-efficacy were mean-centred prior to analysis. CI = confidence interval, LL = lower limit, UL = upper limit.
***$p < .001$, **$p < .01$.

health and wellbeing via increased barriers to self-care would be moderated by occupational self-efficacy (H3). The interaction between barriers to self-care and occupational self-efficacy was significant for burnout, $B = -.04$, $t(430) = -3.39$, $p < .001$, depression, $B = -.16$, $t(430) = -2.89$, $p = .004$, and anxiety, $B = -.13$, $t(430) = -2.79$, $p = .006$, but not for wellbeing, $B = -.14$, $t(430) = -.56$, $p = .576$. In each case, the associations between self-care barriers and burnout, depression, and anxiety were dependent on the level of occupational self-efficacy, such that they weakened as self-efficacy increased. See Supplementary Materials, Table S4, for full regression results, including confidence intervals.

Table 4 also shows that the index of moderated mediation was negative and significant for burnout, depression, and anxiety, but not for wellbeing. This means that the indirect effect of disaster impact via barriers to self-care on these outcomes decreased as a function of increasing self-efficacy.

Table 5 presents the point estimates and 95 % confidence intervals for the conditional indirect effects at three levels of the moderator (16th, 50th, and 84th percentiles). The indirect effect was significant and positive at each level of the moderator for each outcome. However, in each case, it was stronger when self-efficacy was low, and weaker when self-efficacy was high.

When years' experience was included as a covariate, in the three models predicting burnout, depression, and anxiety, the interaction between self-care barriers and self-efficacy remained significant, as did the index of moderated mediation (see Supplementary Materials, Table S5).

4. Discussion

Our findings show that in a relatively short period, many Australian psychologists had experienced more than one disaster, and multiple disaster experiences increased their risk of burnout and mental health symptoms. Following prolonged COVID-19-related challenges, over half were in danger of, or were experiencing burnout (56.7 %), which increased to 75 % if they had also experienced a recent weather disaster. Over 40 % of all psychologists had wellbeing scores predictive of increased mortality [51], increasing to 60 % for those with recent weather disaster experience. Multiple disasters had compounding effects, with those affected by recent weather disasters being most impacted by COVID-19 challenges. Our findings are particularly concerning given the experienced sample.

Burnout and untreated mental health symptoms have significant impacts on health care delivery [11,54]. Given community mental health concerns are a key consequence of extreme weather events [1,4], it is critical to develop disaster-specific policy and strategy to support the wellbeing and sustainability of the psychology workforce and the quality of client care. Psychologists are well-informed about self-care, and providing information is not enough [][55]. Strategies to support self-care in psychologists should be the shared responsibility of policymakers, professional bodies, and practitioners - many of whom are self-employed or work relatively independently [39]. While intervention at policy and work design levels should be the primary focus for preventing burnout [56], our findings suggest that developing strong self-efficacy across the psychological workforce could buffer the impacts of disasters and associated barriers to self-care on burnout and psychological distress.

We propose that policymakers and professional peak bodies develop a protocol to support the psychology workforce across public and private sectors across all phases of disasters, aligning with existing disaster workforce mental health management frameworks [57,58]. That is, prevention and preparedness strategies should be prioritised to optimise readiness and self-efficacy of the psychology workforce to cope with future disasters and minimise structural barriers to their coping.

Disaster prevention focuses on identifying vulnerabilities and engaging in long-term planning to minimise these vulnerabilities [59]. Disaster prevention could include reducing the high baseline level of burnout and mental health concerns in the psychology profession by supporting practitioners to access evidence-based self-care strategies [24,60–63], intervention by regulators to formally embed self-care as a required competency (e.g. [64]), intervention by government to increase accessible mental health care [65][66] , and addressing the current shortage of psychologists [67].

Disaster preparedness focuses on planning for specific disasters, including the resources and capability needed to ensure an effective response [59,68]. National-level strategies can prepare processes and infrastructure to be deployed during disasters, such as preparing streamlined administrative processes and ensuring that the psychology profession has the capacity to rapidly disseminate information and deliver practitioner professional support.

During disaster response and recovery phases, employers, supervisors, advisors and psychology organisations should proactively

Table 5
Conditional indirect effects of disaster impact on mental health outcomes via barriers to self-care at levels of the moderator.

Level of the moderator	Burnout			Depression			Anxiety		
	Cond. indirect effect	SE	CI	Cond. indirect effect	SE	CI	Cond. indirect effect	SE	CI
Low	.013	.003	.008, .018	.047	.011	.027, .071	.038	.010	.020, .059
Moderate	.009	.002	.006, .013	.033	.007	.020, .048	.026	.006	.015, .040
High	.005	.002	.002, .009	.018	.008	.005, .035	.015	.006	.004, .028

Note. $N = 430$. Levels of the moderator are the 16th (low), 50th (moderate), and 84th (high) percentiles.

monitor practitioner stress and reduce barriers for self-care [58]. While preference for, and effectiveness of, specific self-care strategies vary across individuals, barriers to self-care (e.g., time, cost, availability) are more universally experienced and increase during disaster; reducing these barriers is a sensible target for disaster workforce support. Strategies could include investing in resources such as supervision, peer support and training, access to mental health services, and policies to reduce workplace demands, such as disaster-related paid leave, flexible work arrangements, and minimising administrative burden [11,69]. Strategies should include the needs of psychologists who work as sole practitioners without organisational professional support networks, for example by establishing support networks prior to disasters, so they are routine and accessible, minimising access barriers during crises. Consideration could also be given to developing processes to alleviate workload and allocate additional resources to disaster areas. For example, psychologists in less affected locations can be invited to provide services remotely to enable the most affected psychologists to access recovery time and professional support. Planning for disaster recovery should include access to ongoing peer support, leave, and clear processes for transition from disaster work back to routine work [70]. Monitoring of longer-term wellbeing and evaluation processes inform future prevention and preparedness strategies.

Our research yields novel evidence for the protective role of occupational self-efficacy in mitigating negative mental health outcomes among psychologists in disaster contexts. Being prepared with relevant knowledge and skills supports occupational self-efficacy in crisis situations [71]. Professional development training can be made widely available to enable practitioners to make time for disaster planning, improve their capacity for responding to disaster-related client needs [39], and plan for challenges to their own self-care, business and financial continuity and professional connection. It is acknowledged that occupational competence for one disaster (e.g., bushfire), does not necessarily translate to another disaster (e.g., pandemic). Preparedness strategies could provide core training relevant to most disasters and prepare additional, more specific training that could be quickly offered in response to specific events.

Years' experience did not significantly predict burnout or personal mental health outcomes in our final model, conflicting with previous evidence that psychologists with more experience tend to have greater professional and personal wellbeing [48]. Possible explanations are that in the context of increased workforce pressures (e.g., disasters), later career psychologists may carry heavier and more complex client loads and responsibilities, or that existing support structures in Australia are more focused on earlier career psychologists. Later career psychologists may be particularly vulnerable to leaving early due to burnout. Losing experience and supervision prematurely is hugely detrimental to the profession. Our findings suggest then that support across all stages of career are important in disaster contexts.

4.1. Strengths and limitations

By investigating a unique multi-disaster context, this study contributes to our understanding of the impacts of repeated disasters on practicing psychologists. The study employed a multifaceted approach, examining a range of negative and positive psychological outcomes and modifiable intervening factors, with a large and diverse sample of psychologists, recruited from a comprehensive pool. We acknowledge, however, that self-selection bias is inherent in voluntary survey methods, and our sample included more psychologists who were clinically endorsed, more experienced, and working in the private sector, than would be expected. Additional limitations of this study include the cross-sectional design and use of self-report measures of disaster impacts, with some of the measures being designed specifically for the study and lacking external validation. Although our conceptual model was theoretically supported, alternative models are plausible. For example, it is possible that personal disaster impact and increased barriers to self-care can reduce self-efficacy. Future longitudinal research using validated measures is needed to clarify the nature and direction of the relationships between disaster stress, barriers to self-care, self-efficacy, and mental health, as well as qualitative research to identify potential protocols to ameliorate the negative impact of disasters. The finding that occupational self-efficacy did not protect positive wellbeing in this study implies that different factors may be involved. Future studies focusing on positive aspects of psychologist's wellbeing in disaster contexts (e.g., personal growth, meaning) are needed. Future studies should also investigate the role of other potential moderators, such as personality factors, family responsibilities, sense of duty, social resources (e.g., support and supervision), and workplace structure factors, in protecting the mental health and wellbeing of psychologists in disasters.

4.2. Conclusions

The mental health impacts from a single disaster persist many years after the event itself [72,73]. Psychology training and practice has not been developed in the context of rapidly escalating climate change and cumulative disasters. Following the recent extreme weather events and COVID-19, Australia is now entering a period of drought, with expectations of heatwaves and high risk of further bushfires [74]. Our research suggests that with cumulative disasters, the psychology workforce is likely to become increasingly vulnerable to burnout and mental health concerns. Alongside other mental health professionals, psychology needs to urgently prioritise research and allocate training and resources to 1) support psychologists to maintain their wellbeing during and after disasters, and 2) develop a workforce that is resilient to the demands of cumulative disasters. Strategies to support the psychology workforce need to be long-term, across all levels of the workforce (policy, organisation, individual), and responsive to the changing needs of the workforce as new disasters arise.

Our findings indicate that the challenges of managing multiple personal and professional impacts of disasters must be considered in psychology workforce disaster strategies; bolstering self-efficacy prior to disasters and reducing barriers to self-care during and after disasters may mitigate negative psychological outcomes. These recommendations should be considered in the context of an overarching focus on alleviating the psychosocial risks of being a psychologist (e.g., high workload, lack of job clarity, vicarious trauma

[75]). Based on our data, and in line with the JDR model, we argue that investment in psychologists' wellbeing is likely to improve both personal and professional outcomes for psychologists and, in turn, their clients. Finally, when an additional risk of increasing the load of mental health treatment services is burnout and harm to health professionals, the development of preventative and whole-of-community mental health solutions to disasters is also essential. Investment in social support and connection with community aligns with recommendations based on wider disaster literature to increase resources required to buffer the demands of disasters.

CRediT authorship contribution statement

Emily Macleod: Writing – review & editing, Writing – original draft, Validation, Supervision, Resources, Project administration, Methodology, Funding acquisition, Data curation, Conceptualization. **Sonia Curll:** Writing – review & editing, Writing – original draft, Validation, Project administration, Methodology, Formal analysis. **Iain Walker:** Writing – review & editing, Supervision, Methodology, Conceptualization. **Tegan Cruwys:** Writing – review & editing, Methodology. **Lisa-Marie Greenwood:** Writing – review & editing, Methodology, Funding acquisition, Conceptualization. **Julia Reynolds:** Writing – review & editing, Methodology, Funding acquisition, Conceptualization. **Jo Lane:** Writing – review & editing, Methodology, Funding acquisition, Conceptualization. **Connie Galati:** Writing – review & editing, Methodology, Funding acquisition, Conceptualization. **Bruce Christensen:** Writing – review & editing, Funding acquisition, Conceptualization. **Alison L. Calear:** Writing – review & editing, Supervision, Methodology, Funding acquisition, Conceptualization.

Ethical standards

The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008. The ethics aspects of this research were approved by the ANU Human Research Ethics Committee, Protocol No. 2020/591.

Funding statement

This research was supported by the Australian National University Institute of Climate, Energy and Disasters Seed Fund, and the Australian Government's Medical Research Future Fund (MRFF), National Health and Medical Research Council (NHMRC), Stream 2: Mental health impacts of bushfires on affected communities (MRF1201732). ALC and TC are supported by NHMRC Fellowships (#1173146 and #1173270, respectively). The funding source was not involved in designing the study, conducting the analyses, interpreting the results, or writing of this manuscript.

Declaration of competing interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests:Iain Walker reports financial support was provided by National Health and Medical Research Council. Alison L. Calear reports financial support was provided by National Health and Medical Research Council. Tegan Cruwys reports financial support was provided by National Health and Medical Research Council. Iain Walker reports a relationship with Centre for Behaviour Change, University of Melbourne that includes: employment. Emily Macleod, Jo Lane, Julia Reynolds, Connie Galati, Tegan Cruwys and Bruce Christensen are registered clinical psychologists. There are no further known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgements

The authors wish to acknowledge the support of the Melbourne Centre for Behaviour Change, University of Melbourne, the Australian Psychological Society (APS), the Australian Clinical Psychology Association (ACPA), and the Australian Association of Psychologists Inc (AAPi). The authors also thank the participating psychologists for their generosity in sharing their time and experiences.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ijdrr.2025.105195.

Data availability

Data will be made available on request.

References

[1] Australian Institute of Health and Welfare, Mental health impact of COVID-19. AIHW. https://www.aihw.gov.au/mental-health/monitoring/mental-health-impact-of-covid.
[2] Australian Psychological Society, Unpaid, underfunded and overworked: Psychologists on the brink (2022). https://psychology.org.au/about-us/news-and-media/media-releases/2022/unpaid,-underfunded-and-overworked-psychologists-o.
[3] E. Macleod, T. Heffernan, L.-M. Greenwood, I. Walker, J. Lane, S.K. Stanley, O. Evans, A.L. Calear, T. Cruwys, B.K. Christensen, T. Kurz, E. Lancsar, J. Reynolds, R. Rodney Harris, S. Sutherland, Predictors of individual mental health and psychological resilience after Australia's 2019–2020 bushfires, Aust. N. Z. J. Psychiatr. (2023) 00048674231175618, https://doi.org/10.1177/00048674231175618.
[4] S. Bradshaw, J. Gardner, J. Gergis, G. Blashki, Climate trauma: the growing toll of climate change on the mental health of Australians. https://apo.org.au/node/321652, 2023.
[5] Psychology Board, Registration statistics. Ahpra (2023). https://www.psychologyboard.gov.au/about/statistics.aspx.
[6] O. Laverdière, D. Kealy, J.S. Ogrodniczuk, A.J.S. Morin, Psychological health profiles of Canadian psychotherapists: a wake up call on psychotherapists' mental health, Can. Psychol. 59 (4) (2018) 315–322, https://doi.org/10.1037/cap0000122.
[7] S. Tay, K. Alcock, K. Scior, Mental health problems among clinical psychologists: stigma and its impact on disclosure and help-seeking, J. Clin. Psychol. 74 (9) (2018) 1545–1555, https://doi.org/10.1002/jclp.22614.
[8] E. Humer, B. Pammer, Y. Schaffler, Comparison of mental health indicators in clinical psychologists with the general population during the COVID-19 pandemic, Sci. Rep. 13 (2023) 5050, https://doi.org/10.1038/s41598-023-32316-x.
[9] S.E. Victor, A.R. Devendorf, S.P. Lewis, J. Rottenberg, J.J. Muehlenkamp, D.L. Stage, R.H. Miller, Only human: mental-health difficulties among clinical, counseling, and school psychology faculty and trainees, Perspect. Psychol. Sci. 17 (6) (2022) 1576–1590, https://doi.org/10.1177/17456916211071079.
[10] G.K. Simionato, S. Simpson, Personal risk factors associated with burnout among psychotherapists: a systematic review of the literature, J. Clin. Psychol. 74 (9) (2018) 1431–1456, https://doi.org/10.1002/jclp.22615.
[11] Y. Yang, J.A. Hayes, Causes and consequences of burnout among mental health professionals: a practice-oriented review of recent empirical literature, Psychotherapy 57 (3) (2020) 426, https://doi.org/10.1037/pst0000317.
[12] P. McFadden, J. Ross, J. Moriarty, J. Mallett, H. Schroder, J. Ravalier, J. Manthorpe, D. Currie, J. Harron, P. Gillen, The role of coping in the wellbeing and work-related quality of life of UK health and social care workers during COVID-19, Int. J. Environ. Res. Publ. Health 18 (2) (2021) 815, https://doi.org/10.3390/ijerph18020815.
[13] J.L. Bearse, M.R. McMinn, W. Seegobin, K. Free, Barriers to psychologists seeking mental health care, Prof. Psychol. Res. Pract. 44 (3) (2013) 150–157.
[14] D. Hitch, S. Booth, K. Wynter, C.M. Said, K. Haines, B. Rasmussen, S. Holton, Worsening general health and psychosocial wellbeing of Australian hospital allied health practitioners during the COVID-19 pandemic, Aust. Health Rev. 47 (2023) 124–130, https://doi.org/10.1071/ah2211.
[15] N. Smallwood, L. Karimi, M. Bismark, M. Putland, D. Johnson, S.C. Dharmage, E. Barson, N. Atkin, C. Long, I. Ng, A. Holland, J.E. Munro, I. Thevarajan, C. Moore, A. McGillion, D. Sandford, K. Willis, High levels of psychosocial distress among Australian frontline healthcare workers during the COVID-19 pandemic: a cross-sectional survey, General Psychiatry 34 (5) (2021) e100577, https://doi.org/10.1136/gpsych-2021-100577.
[16] S. Ghahramani, K.B. Lankarani, M. Yousefi, K. Heydari, S. Shahabi, S. Azmand, A systematic review and meta-analysis of burnout among healthcare workers during COVID-19 [Systematic Review], Front. Psychiatr. 12 (2021, 2021-November-10), https://doi.org/10.3389/fpsyt.2021.758849.
[17] C. Lluch, L. Galiana, P. Doménech, N. Sansó, The impact of the COVID-19 pandemic on burnout, compassion fatigue, and compassion satisfaction in healthcare personnel: a systematic review of the literature published during the first year of the pandemic, Healthcare 10 (2) (2022) 364, https://doi.org/10.3390/healthcare10020364.
[18] I.D. Saragih, S.I. Tonapa, I.S. Saragih, S. Advani, S.O. Batubara, I. Suarilah, C.J. Lin, Global prevalence of mental health problems among healthcare workers during the Covid-19 pandemic: a systematic review and meta-analysis, Int. J. Nurs. Stud. 121 (2021) 104002, https://doi.org/10.1016/j.ijnurstu.2021.104002.
[19] Intergovernmental Panel on Climate Change, Climate Change 2022: Impacts, Adaptation and Vulnerability – Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change, Cambridge University Press, 2022.
[20] E. Demerouti, A.B. Bakker, F. Nachreiner, W.B. Schaufeli, The job demands-resources model of burnout, J. Appl. Psychol. 86 (2001) 499, https://doi.org/10.1037//021-9010863499.
[21] E. Demerouti, A.B. Bakker, Job demands-resources theory in times of crises: new propositions, Organizational Psychology Review 13 (3) (2023) 209–236, https://doi.org/10.1177/20413866221135022.
[22] Y. Tominaga, T. Goto, J. Shelby, A. Oshio, D. Nishi, S. Takahashi, Secondary trauma and posttraumatic growth among mental health clinicians involved in disaster relief activities following the 2011 Tohoku earthquake and tsunami in Japan, Counsell. Psychol. Q. 33 (4) (2020, 2020/10/01) 427–447, https://doi.org/10.1080/09515070.2019.1639493.
[23] K. Posluns, T.L. Gall, Dear mental health practitioners, take care of yourselves: a literature review on self-care, International Journal of Advanced Counselling 42 (2020) 1–20, https://doi.org/10.1007/s10447-019-09382-w.
[24] M. Di Benedetto, M. Swadling, Burnout in Australian psychologists: Correlations with work-setting, mindfulness and self-care behaviours, Psychol. Health Med. 19 (6) (2014) 705–715, https://doi.org/10.1080/13548506.2013.861602.
[25] T. Eriksson, L. Germundsjö, E. Åström, M. Rönnlund, Mindful self-compassion training reduces stress and burnout symptoms among practicing psychologists: a randomized controlled trial of a brief web-based intervention, Front. Psychol. 9 (2018, 2018-November-27), https://doi.org/10.3389/fpsyg.2018.02340.
[26] Y. Kotera, W. Van Gordon, Effects of self-compassion training on work-related well-being: a systematic review, Front. Psychol. 12 (2021) 630798, https://doi.org/10.3389/fpsyg.2021.630798.
[27] A. Rokach, S. Boulazreg, The COVID-19 era: how therapists can diminish burnout symptoms through self-care, Curr. Psychol. 41 (8) (2022, 2022/08/01) 5660–5677, https://doi.org/10.1007/s12144-020-01149-6.
[28] A.B. Bakker, E. Demerouti, A. Sanz-Vergel, Job demands–resources theory: ten years later, Annual Review of Organizational Psychology and Organizational Behavior 10 (1) (2023) 25–53, https://doi.org/10.1146/annurev-orgpsych-120920-053933.
[29] T. Rigotti, B. Schyns, G. Mohr, A short version of the Occupational Self-Efficacy Scale: structural and construct validity across five countries, J. Career Assess. 16 (2) (2008) 238–255, https://doi.org/10.1177/1069072707305763.
[30] M.W. Gallagher, Self-efficacy, in: V.S. Ramachandran (Ed.), Encyclopedia of Human Behavior, second ed., Academic Press, 2012, pp. 314–320, https://doi.org/10.1016/B978-0-12-375000-6.00312-8.
[31] Royal Commission into National Natural Disaster Arrangements, Royal Commission into National Natural Disaster Arrangements - Report. Commonwealth of Australia (2020). https://naturaldisaster.royalcommission.gov.au/publications/royal-commission-national-natural-disaster-arrangements-report.
[32] Australian Institute for Disaster Resilience, Major incidents report 2021–22. www.aidr.org.au/media/9574/aidr_major-incidents-report_2021-22.pdf, 2022.
[33] A. Van Hoy, M. Rzeszutek, Burnout and psychological wellbeing among psychotherapists: a systematic review, Front. Psychol. 13 (2022), https://doi.org/10.3389/fpsyg.2022.928191.
[34] P. Koutsimani, A. Montgomery, K. Georganta, The relationship between burnout, depression, and anxiety: a systematic review and meta-analysis, Front. Psychol. 10 (2019) 284, https://doi.org/10.3389/fpsyg.2019.00284.
[35] C. Maslach, W. Schaufeli, M. Leiter, Job burnout, Annu. Rev. Psychol. 52 (2001) 397–422, https://doi.org/10.1146/annurev.psych.52.1.397.
[36] W. Schaufeli, M. Leiter, C. Maslach, Burnout: 35 years of research and practice, Career Dev. Int. 14 (2009) 204–220, https://doi.org/10.1108/13620430910966406.
[37] C.L.M. Keyes, Promoting and protecting positive mental health: early and often throughout the lifespan, in: Mental Well-Being: International Contributions to the Study of Positive Mental Health, Springer Science + Business Media, 2013, pp. 3–28, https://doi.org/10.1007/978-94-007-5195-8_1.
[38] J. Margraf, X.C. Zhang, K.L. Lavallee, S. Schneider, Longitudinal prediction of positive and negative mental health in Germany, Russia, and China, PLoS One 15 (6) (2020) e0234997, https://doi.org/10.1371/journal.pone.0234997.

[39] E. Macleod, S. Curll, I. Walker, J. Reynolds, J. Lane, C. Galati, L.-M. Greenwood, B. Christensen, A. Calear, Australian Psychologists in the Context of Disasters: Preliminary Report on Workforce Impacts and Needs, 2023.
[40] R.A. Bryant, E. Waters, L. Gibbs, H.C. Gallagher, P. Pattison, D. Lusher, C. MacDougall, L. Harms, K. Block, E. Snowdon, V. Sinnott, G. Ireton, J. Richardson, D. Forbes, Psychological outcomes following the victorian black saturday bushfires, Aust. N. Z. J. Psychiatr. 48 (7) (2014) 634–643, https://doi.org/10.1177/0004867414534476.
[41] F.H. Norris, G.A. Uhl, Chronic stress as a mediator of acute stress: the case of Hurricane Hugo, J. Appl. Soc. Psychol. 23 (16) (1993, 1993/08/01) 1263–1284, https://doi.org/10.1111/j.1559-1816.1993.tb01032.x.
[42] X. Wang, L. Gao, H. Zhang, C. Zhao, Y. Shen, N. Shinfuku, Post-earthquake quality of life and psychological well-being: longitudinal evaluation in a rural community sample in northern China, Psychiatr. Clin. Neurosci. 54 (4) (2000) 427–433, https://doi.org/10.1046/j.1440-1819.2000.00732.x.
[43] A. Malach-Pines, The burnout measure, short version, Int. J. Stress Manag. 12 (1) (2005) 78–88, https://doi.org/10.1037/1072-5245.12.1.78.
[44] R.L. Spitzer, K. Kroenke, J.B. Williams, B. Löwe, A brief measure for assessing generalized anxiety disorder: the GAD-7, Arch. Intern. Med. 166 (10) (2006, May 22) 1092–1097, https://doi.org/10.1001/archinte.166.10.1092.
[45] K. Kroenke, R.L. Spitzer, J.B. Williams, The PHQ-9: validity of a brief depression severity measure, J. Gen. Intern. Med. 16 (9) (2001) 606–613, https://doi.org/10.1046/j.1525-1497.2001.016009606.x.
[46] WHO, Wellbeing Measures in Primary Health Care/the DepCare Project: Report on a WHO Meeting: Stockholm, Sweden, 12–13 February 1998, World Health Organization. Regional Office for Europe, 1998. https://iris.who.int/handle/10665/349766.
[47] C.W. Topp, S.D. Østergaard, S. Søndergaard, P. Bech, The WHO-5 Well-Being Index: a systematic review of the literature, Psychother. Psychosom. 84 (3) (2015) 167–176, https://doi.org/10.1159/000376585.
[48] K.E. Dorociak, P.A. Rupert, E. Zahniser, Work life, well-being, and self-care across the professional lifespan of psychologists, Prof. Psychol. Res. Pract. 48 (6) (2017) 429–437, https://doi.org/10.1037/pro0000160.
[49] Australian Government, Psychologists and Psychotherapists (2021). Retrieved 11 September 2023 from, https://labourmarketinsights.gov.au/occupation-profile/psychologists-and-psychotherapists?occupationCode=2723.
[50] Australian Government, Factsheet, Allied Health 2019. Department of Health and Aged Care, Australian Government, 2019. https://hwd.health.gov.au/resources/publications/factsheet-alld-2019.html.
[51] M. Birket-Smith, B.H. Hansen, J.A. Hanash, J.F. Hansen, A. Rasmussen, Mental disorders and general well-being in cardiology outpatients—6-year survival, J. Psychosom. Res. 67 (1) (2009) 5–10, https://doi.org/10.1016/j.jpsychores.2009.01.003.
[52] B. Levis, A. Benedetti, B.D. Thombs, Accuracy of Patient Health Questionnaire-9 (PHQ-9) for screening to detect major depression: individual participant data meta-analysis, BMJ 365 (2019) l1476, https://doi.org/10.1136/bmj.l1476.
[53] F. Plummer, L. Manea, D. Trepel, D. McMillan, Screening for anxiety disorders with the GAD-7 and GAD-2: a systematic review and diagnostic metaanalysis, Gen. Hosp. Psychiatr. 39 (2016) 24–31, https://doi.org/10.1016/j.genhosppsych.2015.11.005, 2016/03/01/.
[54] W.B. Schaufeli, Applying the Job Demands-Resources model: a 'how to' guide to measuring and tackling work engagement and burnout, Organ. Dynam. 46 (2) (2017) 120–132, https://doi.org/10.1016/j.orgdyn.2017.04.008, 2017/04/01/.
[55] K.I. Pakenham, Comment on "The self-care of psychologists and mental health professionals" (Dattilio, 2015), Aust. Psychol. 50 (6) (2015) 405–408, https://doi.org/10.1111/ap.12145.
[56] Office of the Surgeon General, Addressing health worker burnout: the U.S. Surgeon general's advisory on building a thriving health workforce, Health Worker Burnout — Current Priorities of the U.S. Surgeon General. (2022). https://www.hhs.gov/surgeongeneral/priorities/health-worker-burnout/index.html.
[57] Australian Institute for Disaster Resilience, Australian Disaster Resilience Handbook Collection: Australian Emergency Management Arrangements, third ed., Commonwealth of Australia, 2023. https://knowledge.aidr.org.au/media/10162/handbook_aema_web_2023.pdf.
[58] M. Umeda, R. Chiba, M. Sasaki, E.N. Agustini, S. Mashino, A literature review on psychosocial support for disaster responders: qualitative synthesis with recommended actions for protecting and promoting the mental health of responders, Int. J. Environ. Res. Publ. Health 17 (6) (2020) 2011, https://doi.org/10.3390/ijerph17062011.
[59] S.P. Simonović, Systems Approach to Management of Disasters: Methods and Applications, John Wiley & Sons, 2011.
[60] F. Dattilio, The self-care of psychologists and mental health professionals: a review and practitioner guide, Aust. Psychol. 50 (6) (2015) 393–399, https://doi.org/10.1111/ap.12157.
[61] D. McCade, A. Frewen, D.B. Fassnacht, Burnout and depression in Australian psychologists: the moderating role of self-compassion, Aust. Psychol. 56 (2) (2021) 111–122, https://doi.org/10.1080/00050067.2021.1890979.
[62] H.M. McCormack, T.E. MacIntyre, D. O'Shea, M.P. Herring, M.J. Campbell, The prevalence and cause(s) of burnout among applied psychologists: a systematic review, Front. Psychol. 9 (2018) 1897, https://doi.org/10.3389/fpsyg.2018.01897.
[63] C.M. Richardson, W.T. Trusty, K.A. George, Trainee wellness: self-critical perfectionism, self-compassion, depression, and burnout among doctoral trainees in psychology, Counsell. Psychol. Q. 33 (2) (2020) 187–198, https://doi.org/10.1080/09515070.2018.1509839.
[64] Psychology Board of Australia, Understanding competency 3: Exercises professional reflexivity, purposeful and deliberate practice, and self-care (2024). Retrieved from, https://www.psychologyboard.gov.au/Standards-and-Guidelines/Professional-practice-standards/Professional-competencies-for-psychology.aspx.
[65] A. Cleary, N. Thomas, F. Boyle, National Mental Health Workforce Strategy—A Literature Review of Existing National and Jurisdictional Workforce Strategies Relevant to the Mental Health Workforce and Recent Findings of Mental Health Reviews and Inquiries, University of Queensland, 2022. http://hdl.voced.edu.au/10707/603051.
[66] J.L. Edwards, D.A. Crisp, Seeking help for psychological distress: barriers for mental health professionals, Aust. J. Psychol. 69 (3) (2017) 218–225, https://doi.org/10.1111/ajpy.12146.
[67] Department of Health and Aged Care, National Mental Health Workforce Strategy 2022-2032 (2022). Retrieved from, https://www.health.gov.au/sites/default/files/2023-10/national-mental-health-workforce-strategy-2022-2032.pdf.
[68] D.P. Coppola, Introduction to International Disaster Management, third ed., Elsevier, 2015.
[69] K. O'Connor, D. Muller Neff, S. Pitman, Burnout in mental health professionals: a systematic review and meta-analysis of prevalence and determinants, Eur. Psychiatr.: The Journal of the Association of European Psychiatrists 53 (2018) 74–99, https://doi.org/10.1016/j.eurpsy.2018.06.003.
[70] R. Gordon, Community process and the recovery environment following emergency, Environ. Health 4 (1) (2004) 19–34. https://search.informit.org/doi/10.3316/informit.202223044278410.
[71] C. Sawyer, M.L. Peters, J. Willis, Self-Efficacy of beginning counselors to counsel clients in crisis, Journal of Counselor Preparation and Supervision 5 (2) (2013), https://doi.org/10.7729/52.1015.
[72] R.A. Bryant, L. Gibbs, C.H. Gallagher, P. Pattison, D. Lusher, C. MacDougall, L. Harms, K. Block, G. Ireton, J. Richardson, D. Forbes, R. Molyneaux, M. O'Donnell, The dynamic course of psychological outcomes following the Victorian Black Saturday bushfires, Aust. N. Z. J. Psychiatr. 55 (7) (2021, 2021/07/01) 666–677, https://doi.org/10.1177/0004867420969815.
[73] A. Eugene, N. Alpert, W. Lieberman-Cribbin, E. Taioli, Using NYC 311 call center data to assess short- and long-term needs following Hurricane Sandy, Disaster Med. Public Health Prep. 16 (4) (2022) 1447–1451, https://doi.org/10.1017/dmp.2021.102.
[74] T. Logan, Large parts of Australia put on high alert for significant bushfires in spring, ABC. (2023). https://www.abc.net.au/news/2023-08-23/australia-bushfire-forecast-high-alert-spring/102741650.
[75] Safe Work Australia, Model Code of Practice: Managing Psychosocial Hazards at Work, Australian Government, 2022. https://www.safeworkaustralia.gov.au/doc/model-code-practice-managing-psychosocial-hazards-work.