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Climate Change in Rural Australia: Natural Hazard Preparedness and Recovery Needs of a Rural Community

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Abstract: Climate change has resulted in a worldwide increase in intensity and frequency of extreme weather events including bushfires. Previous research has shown that communities often do not engage in disaster preparedness, even when sufficient education and resources are provided. With the projected increase in natural disasters, preparedness is paramount, and more research is needed to gain an understanding into what impacts community preparedness in the face of climate change. This study investigated one rural Australian community's preparedness for the 2019–2020 bushfires. Thirteen Australian adults who resided within a small rural community in New South Wales during the 2019–2020 bushfires participated in semi-structured interviews. Data were analysed using inductive thematic analysis. Participants reported being unprepared for the 2019–2020 bushfires and that the community has started to prepare for future bushfires. However, they also described a belief in 'climate cycles' rather than climate change, limiting engagement in preparedness for future hazards. Participants also reported that they did not talk about the 2019–2020 bushfires, although described experiencing residual anxiety. Recommendations included support needed for rural communities to help with future preparedness efforts and mental health symptoms.

Keywords: rural health; back summer; psychological preparedness; physical preparedness; community mental health; wellbeing; distress; wildfire; climate change



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1. Introduction

Natural disasters are a global issue, and due to climate change, there has been an increase in the intensity and frequency of natural disasters. The past decade (2010–2019) was the hottest decade on record due to climate change, during which numerous international natural disasters occurred [1]. Natural disasters are a common occurrence in Australia [2,3]. Australia has a naturally fluctuating climate, so when the effects of climate change are factored in, it is no surprise that the Australian climate has become more variable and that natural disasters are increasing within these conditions [3,4]. Global temperatures are rising, and Australia's mean temperature has risen by approximately 1.4 degrees since 1910 [4]. With temperatures increasing, it has been suggested that Australia will experience an increase in heatwaves, rising sea levels, the intensity of tropical cyclones, and the frequency and intensity of floods and bushfires [3–6]. It is estimated that disasters will start to compound, meaning they will occur simultaneously or in quick succession, resulting in natural disasters being more challenging to manage [4]. Compounding disasters negatively impact coordination and recovery efforts as they weaken support systems, worsen damage already caused, and increase vulnerability to future disasters [7]. The 2019–2020 bushfire season is a prime example of climate change leading to severe and compounding disasters, following three years of intense drought in southern and eastern Australia. The 2019–2020 bushfire season involved 200 concurrent and sequential bushfires across the country [7]. Given the negative impact that compounding disasters have on recovery, there is an urgent need to better understand how to prepare for them.

Disaster preparedness is an important factor in reducing both physical and psychological harm and suffering after a natural disaster [8]. There are two main types of disaster preparedness: physical preparedness and psychological preparedness. Physical preparedness for a natural disaster may include early warning systems, local plans, shelters, government regulations, remaining informed about hazards, creating emergency communication plans, and maintaining supply kits [8–10]. Psychological preparedness is an emerging concept and encompasses “reducing and managing the psychological and emotional impact” ([11], p. 1) of natural disasters [12]. Psychological preparedness is understood as comprising two main components: a cognitive component and an affective component [13]. The cognitive component involves knowledge of the natural disaster and surrounding environment and adaptive responses, whilst the affective component includes self-awareness, understanding, and emotional regulation [13].

Physical preparedness has a substantial research base, whilst psychological preparedness is a developing area of study [11,12]. Both national and international studies have found that psychological preparedness increases physical preparedness, improves stress management during a disaster, and decreases the chance of experiencing mental health concerns post-disaster [3,13–15]. More research into psychological preparedness and supporting communities to psychologically prepare is needed. The research regarding physical preparedness illustrates that the more physically prepared individuals are for natural disasters, the less physical and psychological harm they are likely to experience [8]. Despite this, evidence suggests that communities and individuals often do not engage in disaster preparedness, even when sufficient education and resources are provided, and even in areas with past hazard exposure [8,16–18]. This can be illustrated by a systematic review assessing community preparedness, which found that there was a lack of mental health preparedness in the majority of countries [15]. It has also been found that individuals overestimate their level of preparedness, resulting in them being underprepared [8].

Natural disasters negatively impact mental health and wellbeing worldwide [19]. A third to half of the population exposed to a natural disaster can suffer from short-term psychological distress following the event, and a minority may go on to develop chronic psychological conditions such as post-traumatic stress disorder (PTSD), depression, anxiety disorders, substance use, and suicidality [19–23]. Bushfire-specific research on the long-term impact of the Ash Wednesday bushfires that occurred in Australia in 1983 found that childhood disaster exposure had a small direct impact on adult psychiatric morbidity 20 years later [24]. It was found that, of the participants exposed to the Ash Wednesday bushfires in childhood, 36.7% met the criteria for a DSM-5 psychiatric disorder within their lifetime, and 15.2% met the criteria for a disorder within the last month [24]. These psychological consequences can be compounded upon repeated exposure to additional traumatic events or stressful life events [25–27].

Pre-existing mental health concerns and/or mental health consequences of prior disaster exposure may also interfere with disaster preparedness [28,29]. Research has shown that community members with poor mental health are less likely to have either an emergency plan or household disaster supplies [28]. Possible explanations for a lack of disaster preparedness include the symptoms that underlie and perpetuate psychological disorders. For example, PTSD is characterised by persistent avoidance of any stimuli associated with the traumatic event [30]. If the traumatic event is a natural disaster, avoidance of the disaster or reminders of the disaster can impede preparedness [29]. This pattern can be seen with other symptoms of psychological disorders, such as hopelessness in depression [29]. Given psychological preparedness can mitigate the negative impact disasters have on an individual’s health and wellbeing, it is important to understand barriers to preparedness [29], especially as climate change continues to escalate.

Rural Australian communities are prone to natural disasters, and living in rural Australia increases risk of experiencing one or more natural disasters [3,31]. Both rural and urban communities experienced the 2019–2020 bushfires; however, urban and rural communities had differing experiences of the bushfires due to location, climate, resources,

and, in some cases, the interconnectedness of home and livelihood [3,32]. Urban residents were at an advantage as disaster mitigation infrastructures are more likely to be in place, whereas rural residents are at a disadvantage as they are more vulnerable to natural disasters due to location, climate, and vegetation [3]. Rural Australian communities are often agriculture-dependent, which can amplify hardships compared to their urban counterparts. For example, work and home are often combined in agricultural families, resulting in a crossover between home, work, and family roles [32], meaning that natural disasters not only threaten their homes but also their livelihoods. Rural communities also have limited access to resources and support post-disaster, such as health and wellbeing services [32]. There is limited research into the experience of the 2019–2020 bushfires in rural Australia and how these communities prepared for the bushfire season. As psychological preparedness is an emerging area of study, there is little insight or understanding into if and how rural Australian communities psychologically prepared for the 2019–2020 bushfire season. Disaster resilience and recovery is a national priority, as Australia is forecast to have an increase in natural disasters with escalating climate change [4].

As disasters increase, individual and community exposure to natural disasters also increases; therefore, understanding mental health and resilience outcomes is crucial to disaster preparedness efforts, both physical and psychological. Due to the disproportionately increased vulnerability of rural communities, more research is needed to ascertain community needs post-natural-disaster. Understanding community needs can inform preparation for future disasters. As community mental health outcomes interrelate with preparedness efforts, understanding community mental health needs and community coping post-disaster is crucial in facilitating preparedness, recovery, and resilience. The aim of the current study, therefore, was to gain insight into how a small rural community prepared for and responded to the 2019–2020 bushfires to ascertain community mental health needs during and after such events.

2. Materials and Methods

2.1. Design

This study utilises a qualitative design in order to gain in-depth understanding of the preparedness, response, and mental health needs of a small community. A qualitative design allows for a deeper understanding of context and experiences, and is also valuable where topics are less researched.

2.2. Participants

Participants were 13 Australian adults (6 women and 7 men); ages ranged from middle to late adulthood. Participants were residing within a small rural community in the Northern Tablelands of New South Wales at the time of the 2019–2020 bushfires. The community experienced multiple fires over the 2019–2020 bushfire period. The sample represented approximately 10% of the village's population, and the sample size was determined through informational power [33]. The larger information power a sample holds, the lower the required sample size needs to be. Informational power is based off five concepts: aim, specificity, theory, dialogue, and analysis [33]. As the current study had a narrow aim, specific sample, strong theoretic background, and strong dialogue, it was determined that the data collected met informational power.

2.3. Procedure

The study received approval from the Human Research Ethics Committee of the University of New England (approval HE22-120). Participants were recruited via advertising within the community such as flyers placed at motels, cafés, and shops. The project was advertised at community events held in conjunction with other services (such as the Rural Fire Service) in the area. Interested individuals contacted the research team. The research team confirmed eligibility, and a time and place for conducting interviews were scheduled. Data were collected approximately 3 years after the 2019–2020 bushfires. Interviews took

place in person at a café in the local community, with one interview conducted via telephone. Participants provided recorded verbal consent before the interview took place. The interviews were audio-recorded, and the recordings were transcribed verbatim. Participants were randomly assigned pseudonyms, and any potentially identifying information was removed from the transcripts.

Interviews

Semi-structured interviews were conducted by members of the research team, who are trained psychologists, individually or in family dyads. The aim of the interviews was to gain insight into the community needs after the 2019–2020 bushfires. The interviews sought to gain insight into the rural community preparedness, as well as mental health needs and community coping, in order to better understand how to support rural communities in the future with disasters and recovery. Through the interviews, we also aimed to gain insight into mental health symptoms and community coping following the 2019–2020 bushfires to ascertain the community's mental health needs. Interviews were selected as they allowed for detailed examination of the community's experiences and responses to the bushfires and allowed for a rich knowledge base to be collected. The interview questions were developed by the research team with consideration of the relevant literature. The full list of interview questions can be found in the Supplementary Materials. The interview broadly assessed experiences of the fire season, and questions focused on climate (e.g., "What does the phrase 'climate change' mean to you?"), physical preparedness (e.g., "What did the community do to prevent bushfires or bushfire damage?"), psychological preparedness (e.g., "How might someone mentally prepare for a disaster? What would this look like?"), mental health (e.g., "When the 2019–2020 bushfires happened, what was the most stressful thing your family or others in the community?"), and community needs (e.g., "What do you think should be included in a bushfire intervention program that targets mental health and preparedness?").

2.4. Data Analysis

Data were analysed using inductive thematic analysis, and coding was conducted at the semantic level [34]. Data were analysed from a realist epistemology [35]. This approach was selected as it is a useful qualitative approach for applied research designs that provides a flexible yet robust systematic framework for coding data and has been used widely in the health sciences [34]. The first author developed familiarity with the data through repeated listening to the recorded interviews and reading and re-reading interview transcripts. Codes were generated by the first author while re-reading the transcripts. Similar codes were grouped together, and there was a focus on recurring patterns within the data, with a specific focus on patterns related to preparedness, both physical and psychological, as well as mental health during and after the 2019–2020 bushfires, and what the community thought would be helpful to preparedness efforts and coping post-disaster. These patterns were grouped into subthemes, and those subthemes were revised (usually with subthemes merging together) until the main themes were named and identified. These themes were then refined in discussion with the last author to ensure a comprehensive representation of the data. The final themes were then reviewed by all authors and further refined. Rigour was established through critical dialogue between first author and last author that reviewed, discussed, reflected, and explored the interpretative possibilities of themes [36].

3. Results

All participants reported being impacted by the 2019–2020 bushfire season. All participants described varying levels of preparedness and had some residual mental health impacts after the bushfires. The following analysis is presented in two parts. The first part focuses on the community's preparedness for bushfires. Three themes related to preparedness were identified: community preparedness, individual preparedness, and mental preparedness, with community preparedness being broken into two subthemes:

“... as a whole our community’s not ready” and “It’ll come around a cycle”. Individual preparedness was also broken into two subthemes “We were prepared” and “Ready for the next time”. The second part of the results focuses on mental health. Two themes pertaining to mental health of the community following the 2019–2020 bushfires were found; these were “residual anxiety” and “we don’t talk about it”. These themes are described below with representative quotes from participants (pseudonyms used).

3.1. Preparedness

When discussing preparedness, all participants focused on physical preparedness, and reported varying levels of physical preparedness within the community. That is, contrasts were drawn between different sections of the community with regards to levels of physical preparedness. Psychological preparedness was spoken about minimally by participants. Preparedness, both physical and psychological, is outlined below.

3.1.1. Community Preparedness

As a Whole Our Community’s Not Ready

The majority of participants recounted a series of ways in which the community was not physically prepared for the 2019–2020 bushfire season. Participants explained that the community was not physically prepared at the individual property level, and this placed the wider community at risk. Further, they described that the community did not have an evacuation point/community hub. Participants also reported that during the 2019–2020 bushfire season, there were difficulties with communication, such as telecommunications, that exacerbated the community’s lack of preparedness. Consequently, participants explained that no lives or homes were lost during the 2019–2020 bushfire season due to “luck” rather than preparation.

Participants recounted that the community was physically unprepared with property vegetation overgrown and high amounts of dry grass increasing fuel load and putting neighbouring properties and the wider community at risk. Belinda exemplifies this point when she explained that there is a reliance on people within the community to prepare their properties. She explains that while her property may have been physically prepared, she is still at risk as others have not engaged in bushfire preparedness efforts.

and if it’s not on your land you can’t, my neighbour had grass higher than me, nothing I can do about it and that puts me at risk

Participants reported that the community was disorganised with no community evacuation point and that individuals did not have clear evacuation plans. Due to the lack of planning and preparedness, participants reported feeling confused as they did not know where they should go upon receiving evacuation orders. This can be evidenced through Oliver’s recounts the evacuation order.

I think the thing that was sort of stood out to me anyway um when the evacuation order came people didn’t know what to do they didn’t know where to go

The majority of participants expressed that communication difficulties were present at the time of the bushfires and exacerbated the lack of preparedness. In particular, participants reported having poor mobile reception and thus being unable to communicate effectively with each other and the support that was arriving to assist with the fires. Participants reported that they could not share important information, such as their location or what roads remained open. They explained that it limited their ability to organise resources to fight the fire, further exacerbating the lack of preparedness within the community. Yazmin reported:

I couldn’t ring anybody to you know help you had to drive all the way to the intersection to make a phone call back and forwards back and forwards

Further evidencing the lack of preparedness, participants described that the community did not lose any lives or homes and attributed this to luck rather than preparation,

with many participants reported that they “were lucky” when it came to the lack of damage and loss to the community. Garry explained:

It was by luck, it wasn't by good management

These findings, taken together, demonstrate that the rural community in the Northern Tablelands did not report being physically prepared for the 2019–2020 bushfire season at the community level.

It'll Come around a Cycle

The majority of participants explained that they did not attribute the bushfires to climate change. Instead, they discussed that the bushfires were part of the environment's natural cycles. When asked about the changes in the environment, Yazmin offered this perspective:

I'm not really a big believer of climate change. I'm more of a cycles you know and whether something else that makes the cycles longer harder stronger or whatever I don't know

The majority of participants agreed that the bushfires, and natural disasters in general, will happen again. Participants were divided on when the bushfires would reoccur. Some participants reported that there is an undeniable change in weather, and where bushfires used to occur every decade or so, they are now occurring more frequently. An example comes from Penelope when she discussed how there is a noticeable shift in rainfall, and this increased wariness around bushfires in the community:

I think everyone's terrified. I think before everyone would have thought oh you know we won't have fires again for years. You know before you know it used to be probably a fifteen twenty-year cycle kind of thing. Now I think people are going wow this could just happen again

Other participants believed that the bushfires would only occur again infrequently and into the distant future, as part of the natural cycle. For example, when Patrick discussed preparedness, he explained that natural disasters are going to reoccur and the community needs to be prepared, but that this will not be soon.

So, you've got to go and say, not that this won't happen again, you know, but this only happens once every 25 years

These findings illustrate that whilst the majority of community members do believe that they will be impacted by a bushfire in the future, there are differing beliefs amongst the community on when future bushfires will take place. Some believed that they could happen every season, and others believed it will “never happen again in our life time”. In these interviews, it was evident that this community viewed changing weather as part of climate cycles rather than climate change. Such beliefs around climate cycles/change appeared to reduce community preparedness, due to a belief that these events would not occur within the near future, and thus immediate preparation for future events was seen as less necessary.

3.1.2. Individual Preparedness

We Were Prepared

A small number of participants reported being “ready” and “prepared” for the 2019–2020 bushfires. Interestingly, when participants discussed feeling prepared, they were explaining their own individual preparedness—that of themselves, their family, and their household. An example of this comes from Yuri when he discussed how his property was prepared for bushfires:

Our place was tidy and green like we were prepared

By contrast, when the community as a whole was discussed, all participants described the community as being unprepared for the 2019–2020 bushfire season. This was evidenced by Belinda who said:

Yeah but as a whole our community's not ready. Like if you drive into our village the only place that you can save is our school every other building there, they're overgrown, they're not defensible even if their house is tidied their neighbours aren't

The participants who expressed that they were feeling prepared described aspects of physical preparedness and outlined that they had physically prepared in two main ways. Firstly, they had reduced their fuel load around their properties. Participants explained that they kept their grass short and green, removed trees that were close to their properties, and cleared their gutters. The second way participants reported physically preparing was by having a bushfire evacuation plan for their household. It is interesting to note that despite living in a bushfire-prone area, only two participants reported having an evacuation plan. Brad provides an example of physically preparing through both fuel load reduction and evacuation plans.

we were really prepared in a certain sense with the houses and different things and we had evacuation plans

These findings illustrate that despite participants reporting that “we were prepared”, a minimal number of participants reported individually preparing for bushfires (fuel reduction and planning). Further, despite some individual preparedness, the community as whole was not prepared, limiting the benefits of individual preparedness.

Ready for Next Time

Despite mixed beliefs about if and when future fires may occur in the region, a majority of participants reported that they had started to prepare for future fires in some way. This preparation commenced within the 2019–2020 bushfire season for future fires during that season and also for future bushfire seasons. The majority of participants explained that, since the community's experience of the bushfires, they had been acquiring organising resources to prepare their properties for future fires. They described a range of ways in which they were mitigating bushfire risk, such as reducing fuel loads around their properties; this included not having woodchips in the garden, keeping gardens clean and green, and replacing existing plants with low-flammability plantings. Several participants also described implementing strategies to help with fire protection in the event of future fires, such as upgrading sprinkler systems and inputting water pumps. Some also reported purchasing additional machinery to help them manage fires in the future. Patrick described how he has prepared his property for future bushfires:

non-flammable, um, plantings, you know, in, in the garden. Um, and again, you know, just, um, I've sort of upgraded my, my, um, sprinkler system, and I'm actually just going to sort of, um, I haven't finished with it yet, but eventually I'll be able to just put sprinklers on the roof. Um, and I'll set my pump running, and then have a separate tank for that, where the, where the, when the water runs off from the roof, it just goes back into the tank, and then runs through the pump. Yeah, and then if you need to leave, you just leave that going

The majority of participants discussed rebuilding fencing and other damaged infrastructure with fire-resistant materials (e.g., steel) to minimise the impacts of future fires. Overall, participants reported feeling more prepared for future bushfires due to their preparations. Brad discussed how he was feeling more prepared for future fires due to his preparedness efforts.

if there was a fire tomorrow um we'd have trouble but no I think we'd be alright I think we'd have a much better understanding of um of what we'd have to do to minimise our losses um and a lot of what we've rebuilt is from fire resistant materials so that's a lot of our fencing and yards and stuff would um would fare a lot better

Taken together, the findings illustrate that the community in the Northern Tablelands did not report being prepared for the 2019–2020 bushfire season at the community level, although there was a small number of participants who described being physically prepared

on an individual level. Whilst participants did express that after the bushfires they had started to prepare for future fires, this again focused on physical preparedness at the individual rather than the community level and was also limited by varying beliefs as to when future fires may impact the region. Disaster preparedness was not discussed as a community, and this is evident, as participants did not describe the community coming together to plan for future bushfires (e.g., early warning systems, local plans, evacuation point, creating emergency communication plans, and maintaining supply kits, etc.).

3.1.3. Mental Preparedness

Notably absent from accounts was an awareness of the psychological aspects of preparedness. When specifically asked, there were limited responses regarding mental preparedness, with the majority of participants being unsure of how to respond to questions around mental preparedness or what mental preparedness even is. For example, Gemma stated:

yeah I think what mentally prepared you was actually seeing that fire hahaha

When participants were asked about mental preparedness, the most common response was that being physically prepared was being mentally prepared. This can be evidenced when Brad discussed his understanding of mental preparedness:

Oh, look for me being mentally prepared is being physically prepare

These findings highlight a limited understanding or awareness of psychological preparedness. Participants did not report engaging in psychological preparedness before, during, or after the 2019–2020 bushfires.

3.2. Mental Health

Participants reported hesitancy talking about the 2019–2020 bushfire season within the community, as they were concerned that they may become upset or upset other community members. Despite a lack of willingness within the community to talk about the fires, participants reported a range of mental health symptoms that developed and persisted after the fires, and these are outlined below.

3.2.1. We Don't Talk about It

The majority of participants described how the community did not come together, share, or discuss their experiences post-bushfire. There were multiple reasons reported. One that appeared to be most prominent within the community was not wanting to re-experience what had occurred. Participants reported talking about the events brought them back to that point in time, and it was evident that there were concerns about becoming upset or possibly upsetting other community members by talking about the bushfires. When Patrick discussed how the community managed post-bushfire, he explained that the bushfires were not a topic that was commonly brought up in the community:

I know that, I haven't really talked to people much about their experience of the fire, um or fires and drought, and um . . . I sort of, um mainly because I think it hasn't been raised with me. And I'm probably not very much inclined to sort of asking people, you know, um unless they, you know, sort of invite that um conversation

Belinda recounted that after the bushfire season, everyone needed to get back to work and wanted to move on, and when help came, it was too late, and it upset the community to talk about the fires:

when the help finally come it was too late like our kids talking to the kids it was great like don't get me wrong the [organisations] or whoever brought stuff to them had good intentions but it was too late it just brought our kids back to that moment

Participants reported not wanting to re-experience the bushfires and that they wanted to move on. Brad explained that the community does talk about the bushfires in specific forums such as specific community meetings, but not in general conversation as the community:

the fires came up then um so you know it does come up but not really in general conversations um and I honestly try and steer it away when it does come up because like I was saying before we just really tried to move on and not think about it too much anymore or not talk about it too much

Participants explained that farmers struggle to talk about mental health, and this may be why the community does not discuss the impact of the bushfires. Yazmin explained:

oh, farmers are not very good at talking about those kind of things or they weren't they probably don't want to admit that they need some help or that they've got some residual hang ups or anxiety

Participants reported that the community does not discuss their experience of the 2019–2020 bushfires on a practical (e.g., future planning) or emotional (e.g., mental health impacts) level.

3.2.2. Residual Anxiety

Overall, participants reported that they did not talk about the 2019–2020 bushfires, and this could have impacted the awareness of mental health concerns within the community. Participants in this study did downplay any mental health concerns or impacts; however, they did describe a range of mental health symptoms that they experienced after the 2019–2020 bushfires. Despite being several years after the fires, participants frequently described symptoms of stress and anxiety. When the stress of the bushfires was discussed, Rodney recounted:

Yeah, I suppose its sort of something that plays on your mind for a while

Participants also described being “jumpy”, “vigilant”, “hypervigilant”, and “on high alert”. For example, they reported that if they saw smoke, smelled smoke, or saw a helicopter or fire truck, they would be concerned about fire. Gemma described an experience of driving and seeing a fire truck:

there was a fire truck blazing all the sirens going . . . ooo in the mirrors where's that fire where's that fire where's that fire totally freak out I didn't see any smoke when I was driving out and talking to myself you just got on high alert

Interestingly, there was no mention of depressive symptoms or use of the term ‘depression’ during interviews. Rather, these findings illustrate that participants described some mental health symptoms that might be consistent with anxiety, stress, and PTSD following the 2019–2020 bushfire season.

4. Discussion

The current study provides insight into a rural Australian community’s preparedness, as well as mental health needs and community coping. The findings of this study may help guide future research and add to our current knowledge base on how to support rural Australian communities in the future with disaster recovery and preparedness, especially as climate change continues to intensify natural disasters. This study identified limited preparedness as a key theme. It also identified ways in which the rural community talked about ‘climate cycles’ rather than climate change. The current study thus adds to the growing research and literary base surrounding rural disaster preparedness, especially the limited research into psychological preparedness in rural communities.

The findings of this study highlighted that the rural Australian community did not report being physically prepared for the 2019–2020 bushfire season at the community level, although physical preparedness efforts were reported at an individual level. Engaging in disaster preparedness at both the individual (i.e., preparing yourself and your family for disasters, encompassing creating bushfire evacuation plans and gaining knowledge about actions and preparations that can be engaged in within the home) and community levels (i.e., beyond individual preparation, involving the community as a whole, typically including predetermined plans (e.g., community evacuation meeting point) and shared

resources) is essential [16,37] for protecting rural communities. Yet, disaster preparedness (both individual and community) often is not engaged in even when sufficient education and resources are provided and even in areas with a history of hazard exposure [8,16–18]. Both individual and community disaster preparedness are critical to community planning and recovery efforts. The limited community preparedness described highlights that there may be a need for increasing understanding of community and individual preparedness in rural disaster-prone communities to help manage future hazards, including promoting physical preparedness, focusing on barriers to preparation activities, and interventions that can provide knowledge and skills to enhance both individual and community recovery.

Participants reported increasing their disaster preparedness efforts after exposure to the 2019–2020 bushfire season and reported feeling physically prepared for future fires. The focus was on physical preparedness at the individual rather than the community level, illustrating that when supporting rural communities in preparing for future hazards, there needs to be a focus on enhancing community preparedness—in particular, what it is, how to achieve it, and how it is beneficial to disaster recovery. The finding that participants increased their disaster preparedness after exposure to the bushfires is not in line with the disaster preparedness literature, which typically indicates that exposure to natural disasters decreases disaster preparedness. Compounding disasters have been shown to negatively impact preparedness by (1) negatively impacting mental health, resulting in individuals and communities not preparing for future disasters, (2) negatively impacting coordination and recovery efforts, and (3) weakening support systems and worsening physical damage, thus leaving individuals and communities vulnerable to future disasters, and this has been found both nationally and internationally [7,8,16–18]. Research about disaster preparedness has found that in self-reports of disaster preparedness, participants over-report preparedness efforts, and when preparedness is assessed using objective measures, participants are not as prepared as they believe themselves to be [8,38]. Critically, this highlights that even though participants described feelings of preparedness, it is possible they were over-reporting their actual levels of preparedness. Further exploration to ascertain objective changes in preparedness of rural Australian communities is warranted.

Psychological preparedness was not well understood. On the limited occasions that psychological preparedness was discussed, community members discussed cognitive components, that is, those involved in increasing knowledge and adaptive responses (e.g., physical preparedness—cleaning gutters, keeping grass short and green, purchasing additional machinery), with no mention of the affective components (i.e., those that involve self-awareness and emotional regulation) [13]. Limited awareness of or engagement with psychological preparedness may impact physical preparedness efforts, as high levels of stress can impact cognitive functioning (memory, attention, concentration, and problem solving) and thus negatively impact performance and behaviours [11,39]. Both nationally and internationally, psychological preparedness has been found to increase physical preparedness, improve stress management during a disaster, and decrease the chance of experiencing mental health concerns post-disaster [3,13–15]. In line with the current study and the existing research in the area, it would be beneficial to improve rural Australians' understanding of psychological preparedness to assist with upskilling community members with stress and emotional regulation strategies to help with emotional management during bushfires and other emergencies. This will support coping during future climate-change-induced natural hazards and also to improve preparedness more broadly.

Congruent with the literature, despite a downplaying of mental health symptoms, community members reported experiencing some symptoms following the 2019–2020 bushfire season [40–42] that appear to be in line with stress, anxiety, and PTSD. Despite these mental health symptoms, community members reported that they did not come together, share, or discuss their experiences of the bushfires. In fact, community members reported a preference not to talk about the bushfires and the impact it had on both community members and the community at large. This denial or avoidance is a common symptom in both anxiety and PTSD [30]. This avoidance of talking about the shared experience of the

bushfires within the community highlights a gap in the community's understanding of mental health, community resilience, and recovery, illustrating that rural communities may benefit from enhanced and targeted mental health support post-natural-disaster. It also highlights that the compounding disasters that occurred during the 2019–2020 bushfire season may have weakened community support systems, as the participants reported they do not discuss the bushfires. After the bushfires, the community was impacted by the COVID-19 pandemic, and this may have further hindered social interactions and support.

The rural community not discussing the 2019–2020 bushfire season and trying to “move on” may have resulted in what is known as community corrosion. Community corrosion refers to a community deteriorating due to adversity, thus decreasing the likelihood of community members working together and preparing for future adversity [43]. Community corrosion can occur as disasters can rupture social networks within communities, thereby eroding existing social relationships and undermining social support [20,44]. The literature has found that ‘cognitive social capital’ matters, specifically that lower levels of trust and a diminished sense of belonging are associated with poor mental health in disaster-affected communities [45]. Reciprocal relationships are important, as limited social connections following disaster exposure have been associated with increased risk of PTSD [46]. Our results highlight that community corrosion may have been impacting the community coming together to discuss their experiences, and thus potentially negatively impacting recovery (notwithstanding the pandemic impact raised earlier). More research is needed into community corrosion, community social capital, and disaster recovery in rural Australian communities, as well as how to best support communities to minimise corrosion and subsequent reductions in wellbeing and disaster resilience. Rural communities may also benefit from interventions that promote community recovery and community cohesion.

This study also found that the majority of community members of the rural community did not attribute the bushfires to climate change. Rather, many believed in climate cycles, though there was discrepancy within the community regarding when these cycles would reoccur. The timeframe of anticipated future fires appeared to influence the perceived need to engage in preparation. Having the community divided this way may also have negatively impacted community preparedness through community cohesion. The community not discussing the bushfires may have limited opportunity for shared understanding around when and if fires may reoccur. Research into rural community belief systems and how they impact disaster preparedness efforts is needed. Results suggest that language is important to consider, and terms such as climate cycles may be more readily engaged with than climate change. For future management of disasters and promoting preparedness, consideration of language in intervention and preparedness materials is critical.

Strengths, Limitations, and Directions for Future Research

This study contributes to the growing body of literature surrounding rural mental health and physical and psychological preparedness to natural hazards in light of climate change in Australia. There are several limitations including that participants volunteered to participate in the study, and this may have led to selection biases. The participants are however, a cross-section of the community, including farmers, business owners, members of the rural fire service, and members of the general public. Secondly, as the community sample and population are small, examples and quotes that clearly illustrated main themes needed to be left out of the paper, as they may have made participants identifiable. Finally, the sample was from one small rural community in the Northern Tablelands. While this helps add to the understanding of how this rural community prepares and recovers from natural disasters, the findings reflect one community's experience; more research is needed to ascertain whether these findings are comparable with other rural community experiences. Qualitative research does not have statistical-probabilistic generalisability that is typically applied to quantitative research; however, the current study provides in-depth engagement with experiences that are likely to resonate with some readers. Thus,

the study displays naturalistic generalisability, and the findings have utility beyond the interviewed sample, and the results provide insight into preparing for climate change impacts in Australia (for a full discussion of generalisability in qualitative research, see [47]). However, the sample was predominantly white, and the study focused on fire only; thus, the extent to which the findings of the current study apply across other contexts, cultures, geographic locations, and natural hazards is less clear, and more research is needed in this area. Further research into better understanding experiences and preparedness in Aboriginal Australian communities may also be beneficial. The extent to which these results are consistent with other countries with different infrastructure, risks, and support services also warrants further research attention. Future research may also include a quantitative component to their research design to understand the ubiquity of these findings across more and diverse communities.

5. Conclusions

The findings of this study illustrate that more support may be beneficial for rural Australian communities to help them prepare for natural disasters, especially as these disasters are expected to compound and increase due to climate change. Based on the studied community, rural Australians may benefit from interventions that (1) promote community recovery and community cohesion, (2) teach skills to facilitate psychological preparedness (e.g., emotional regulation and distress tolerance skills), (3) promote community physical preparedness, and (4) provide enhanced and targeted mental health support to rural communities' post-natural-disaster. Government policy and funding need to take community preparedness and mental health into consideration when planning how to manage natural disasters. Due to climate change, the Australian future is forecast to have intense, frequent, and compounding natural disasters; it is thus paramount that rural Australian communities are prepared and supported in this future.

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