Decisions in crisis: examining the psychological impact of individual choices made during disasters

By

Joanne Hills
BPsych(Honours), GradDipEd(Psych), BCom, BBA

Thesis
Submitted to Flinders University
for the degree of

Doctor of Philosophy
College of Nursing and Health Sciences
21 May 2025

CONTENTS

ABSTRACT

The purpose of this study is to explore the psychological impact for people who had to make impromptu decisions in a disaster, such as whether to evacuate their home or not. While there is a vast amount of literature available on the psychological impacts of people in disasters in general, little research has been undertaken to explore how the decisions people had to make in the lead-up to, and during, a disaster have impacted them. Drivers for the study stem from a gap in knowledge about the potential negative psychological impacts on individuals who made decisions and took actions based on those decisions after they had lived experience of a disaster, given: the worsening and changing risk picture of increased global warming, the intensified frequency and severity of disasters, and the multiple concerning negative impacts after a disaster, in terms of deaths, injuries, property damage, and the longer-term psychological impacts and economic losses on the individual.

The study took a qualitative approach using a hermeneutic phenomenological methodology informed by Max van Manen's life world existentialism. A total of 15 adults aged over 18 years from across Australia, who had experienced 4 types of disasters, fire, tornado, flood, and cyclone, took part in semi-structured in-depth interviews. The interviews explored the participants' experiences of the disaster and specifically focused on the decisions they made and the actions they took in the lead-up to, and during, the disaster and the resulting psychological impacts.

The collected data was analysed through a combination of van Manen's thematic and existential approaches. Four themes were identified: *Making sense of my world; making sense of my decisions; my sense of regret, guilt, and anger;* and *my new sense of self.* Four distinct moments of time were also found which delineate the period of the disaster that the participants comments refer to and they are referred to throughout this study as: *the prelude* (the lead-up to the disaster); *the crisis* (during the disaster); *the aftermath* (the few days, weeks, and months after the disaster); and *the long haul* (years after the disaster). The exploration of the participants' shared lived experiences enabled a number of new phenomena to be revealed, including:

- participants found their experience started well before the actual impact of the disaster struck

- the participants' experiences in the disaster were long-lasting and characterised by chaos and confusion
- the chaos and confusion associated with the urgency of the required decision-making was often fraught with uncertainty and feelings of helplessness
- there was a lasting loss of a sense of ontological security
- the *aftermath* was characterised by a sense of surprise about the decisions and what had happened, and there was a drive to make sense of these decisions, even more so after the disaster had passed
- there was also a drive to look back and review what had happened, together with a sense of regret, guilt, and anger that were companions throughout the experience

This study reveals that the mental and emotional toll of making quick, life-altering decisions during a disaster is significant and has long-lasting psychological effects. Understanding these effects contributes to a more comprehensive view of how individuals respond to crises beyond the aftermath of the disaster itself. The knowledge gained from this study can inform preparedness efforts, training, policies, response protocols, and post-disaster interventions, ultimately helping to mitigate the negative psychological effects of disasters on affected populations.

DECLARATION

I certify that this thesis:

1. does not incorporate without acknowledgment any material previously submitted for a degree or diploma in any university
2. and the research within will not be submitted for any other future degree or diploma without the permission of Flinders University; and
3. to the best of my knowledge and belief, does not contain any material previously published or written by another person except where due reference is made in the text.

Signed.....Joanne Hills.....

Date.....21/5/2025.....

ACKNOWLEDGEMENTS

Firstly, and foremost, I would like to acknowledge and thank my supervisors, Professor Paul Arbon and Associate Professor Amanda Muller, whose expert knowledge I couldn't have managed without. In particular, Paul, for his wisdom and incredible experience in the disaster realm and Amanda for all her guidance with academia writing. I am so very grateful to you both for all the support and encouragement you provided throughout and especially towards the end, when I faced significant health challenges and you both offered incredible support to work with me to be able to complete this enormous task and to be able to finish it on time as planned, despite my health issues.

I am also extremely grateful to the wonderful participants in this study, who voluntarily gave up their time to talk to me and tell me their stories. Without their participation this study would not have been possible, and I really appreciate the time they took to share their experiences with me and your contribution to this work is of great significance and importance.

Behind the scenes, I simply could not have succeeded without the care, love and support of my family- my wonderful parents, Brain and Gloria, who were also willing to read and critique my work along the way and were always very encouraging and also a big thank you to my children, Ben and Sam, who were always telling me to go to my computer and write, even at times when I didn't feel like it, they are the most encouraging, helpful and supportive children a parent could ask for. A big thankyou to my sister Claire, who came to the rescue with some major formatting assistance at the finish line and not to forget my good friends who also kept me sane, encouraged me to keep going when things got hard at times and reminded me, I can do this and for standing by me through the tough times.

I would also like to acknowledge the Australian Government Research Training Program Scholarship funding for providing support towards my fees.

I thank you all and will be forever grateful.

PRELUDE

The catalyst for embarking on this research topic resulted from my lived experience when I was talking to community members after the Parkerville bushfires in Western Australia in 2014. At the time, as part of my volunteer role with emergency services, I was conducting outreach and psychological first aid in the fire-affected community and one person's story really resonated with me. I remember her story so vividly, and I felt so moved by her experience, that it inspired me to investigate if other people have had similar experiences, and to ponder what could be done in the future to support people so they will not have to encounter similar types of trauma.

According to the Australian Disaster Resilience Knowledge Hub (2014, p. 1):

> On the 12th of January 2014, a bushfire started in the Perth Hills; it is believed the fire was started by a fallen power pole. The event took place within the heatwave of 8-13 January 2014; characterised by consecutive days over 40 degrees Celsius. Fuelled by excessive heat and strong winds, the fire quickly grew out of control, spreading from Parkerville to Stoneville and Mount Helena. 57 houses were destroyed. A total of 650 hectares were burnt and one man died.

In the weeks after the fire had subsided, emergency services started door-knocking on homes that were still intact in the area, to conduct outreach and psychological first aid to check on the mental and physical wellbeing of community members. At one particular house, a community member (to protect this person's confidentiality and anonymity I will refer to her from now on as Anon) welcomed my colleague and I inside and invited us to sit down on her lounge so that she could talk to us in more depth. Anon burst out crying, reporting that she had been through the most harrowing and terrifying moments of her life and felt she was not coping with life anymore.

Anon's story began with her describing how she had undergone foot surgery on both her feet earlier that week and that she was bound to a wheelchair while she was recovering from surgery at the time the fire started. As the fires worsened throughout the day, and emergency advice warnings suggested they evacuate their home, Anon's husband, their adult son, and Anon collaboratively decided they would not evacuate their house, mostly due to Anon being wheelchair-bound and instead, her husband and son would stay to defend the home in case they came under attack by the fire.

Later that evening, Anon's neighbour's house caught fire and Anon's husband and son went across the road to help their neighbours extinguish the fire on their home. A short while later, Anon's own home started coming under ember attack, with embers landing on her roof and in her front garden, and Anon could not contact her husband or son to let them know, as communications had been lost in the area due to the fires, and she could not evacuate or defend her home due to be being confined to her wheelchair. All Anon felt she could do was to wait at home alone and pray that someone would come and help her. Anon felt helpless and terrified. Anon really regretted her decision not to evacuate earlier in the day. At the time I was talking to her, she was still having nightmares and was unwittingly reliving the traumatic experience every night, playing it over and over in her mind, and she felt she could not function properly due to feeling so stressed and traumatised by the whole experience. Anon's house was saved as her husband and son and many of their neighbours came to assist before the fire took hold; however, Anon was left with ongoing psychological trauma that she was struggling to cope with.

Pondering on her experience led me to wonder if other people had experienced similar situations whereby they regretted decisions they had made in a disaster, and I was both excited and curious about what I could find out and maybe contribute my findings towards minimising these negative impacts for people involved in future disasters. This questioning led me to undertake this study.

CHAPTER ONE
INTRODUCTION AND BACKGROUND TO THE STUDY

Introduction

The purpose of this study is to examine the psychological impact on individuals faced with making spontaneous and impromptu decisions during a disaster, such as whether to evacuate their home or not. While there is a vast amount of literature available on the psychological impacts of people in disasters in general, little research has been undertaken to explore how the decisions people had to make in the lead-up to, and during, the disaster have impacted them. This study is needed to fill a crucial gap in disaster research that addresses the specific psychological challenges faced by individuals making impromptu decisions, to better inform strategies to support and prepare people in future disaster situations.

Why this research?

The Royal Commission into National Natural Disaster Arrangements (2020) was established in response to the extreme bushfire season of 2019-2020 in Australia, which resulted in devastating loss of life, property, and wildlife, and environmental destruction across the nation:

> The fires started in Australia's hottest and driest year on record, with much of the country that burnt already impacted by drought. Over 24 million hectares of land was burnt, 33 people died and extensive smoke coverage across much of eastern Australia may have caused many more deaths. Over 3,000 homes were destroyed. Estimates of the national financial impacts are over $10 billion. Nearly three billion animals were killed or displaced, and many threatened species and other ecological communities were extensively harmed. Every state and territory suffered fire to some extent. Communities were isolated, experiencing extended periods without power, communications, and ready access to essential goods and services, or access to cash or EFTPOS to pay for their most basic needs. Australia-wide, there was significant community loss, devastation of wildlife and adverse health impacts. These losses were exacerbated by severe hailstorms, and floods in some areas that were just starting to recover from the fires. Then COVID-19 hit. Recovery will take years (The Royal Commission into National Natural Disaster Arrangements, 2020, p. 5).

The Royal Commission into National Natural Disaster Arrangements (2020) stated that the unprecedented events of the 2019-2020 bushfires is now our future and that it is important

to learn from that event to inform the development of a system with a national approach, that will be capable of building resilience, and better addressing future preparation for, response to, and recovery from natural disaster.

The Royal Commission into National Natural Disaster Arrangements (2020, p. 7) suggested that in order to best prepare for the future:

> Such a system must have unbroken linkages in place from the highest levels of government to individuals in the community; provide decision-makers with timely, consistent and accurate information; be structured for decisions to be made at the most appropriate level; allow decision-makers to understand and mitigate all risks so far as reasonably practicable; enable stakeholders to understand the residual risk and inform others so that they may take appropriate actions; and it must be resourced to fulfil these functions.

This current study reveals how some of these key suggestions and strategies flagged by The Royal Commission into National Natural Disaster Arrangements (2020) were not effectively implemented, and provides evidence of the negative consequences that followed. By focusing on a nuanced aspect of disaster response, that is, the psychological effects of decision-making in real time, this study contributes to the field of disaster psychology. It allows for a deeper and more enriched understanding of human behaviour under extreme pressure and helps build a more complete picture of how people experience and process disasters.

Benefits of this study

This study allows for an improved understanding of psychological responses to decision-making during disasters and how these critical decisions affect individuals, while also revealing the shared lived experiences of people collectively, allowing for an understanding of common themes. This knowledge could help tailor psychological interventions for people who face similar situations in future disasters. This study fills a gap in the existing literature, which tends to focus on general psychological outcomes without examining how specific decisions made before, or during, a disaster event can influence a person's mental health.

Further benefits of this study include an opportunity to guide future disaster response and planning via the development of strategies for helping individuals make informed decisions under pressure, which could potentially reduce psychological distress in real-time. Furthermore, targeted intervention could also be tailored for individuals who have been affected by decisions they made in a disaster to improve mental health outcomes and

recovery. Results of this study can contribute towards future planning to achieve more positive outcomes and lessen the negative psychological impact on people affected by decision-making in disasters.

The research context for this study is based on the broader field of disaster psychology, but specifically focuses on the under-researched area of decision-making during crises. It seeks to contribute new insights into the psychological effects of having to make rapid, high-stress decisions in the lead-up to and during a disaster, addressing a crucial gap in the current literature and offering practical implications for disaster management and mental health support.

The next part of this chapter is designed to initially orientate the reader towards understanding the extent of the frequency and impact of disasters and how they affect the various levels of a community, particularly because exposure to disasters is a complex and growing worldwide problem. Later in this chapter, the impact of disasters on a more individual level is discussed, along with how people might react in the lead-up to a disaster, to assist the reader to appreciate some of the rationale behind decisions that people might make in such a situation.

Current risk picture

According to the World Health Organisation, in the last decade, more than 2.6 billion people have been affected by a range of disasters, including earthquakes, fires, tsunamis, landslides, cyclones, heat waves, floods, and severe cold weather; and frequently, these disasters lead to mass casualties (WHO, 2023). Furthermore, the Centre for Research on the Epidemiology of Disasters (CRED, 2023) suggests that approximately 200 million people are annually exposed to disasters worldwide. Disasters have far-reaching and varied impacts on people and communities and in addition to injuries and/or loss of life that can result, the United Nations Office for Disaster Risk Reduction highlights other negative impacts of disasters, including serious disruptions to the functioning of a community or a society at any scale leading to one or more human, material, economic, and/or environmental losses, and negative impacts (UNDRR, 2021).

The United Nations (2016, p. 13) defines a disaster as:

> A serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, economic and environmental losses and

impacts. The effect of the disaster can be immediate and localized but is often widespread and could last for a long period of time. The effect may test or exceed the capacity of a community or society to cope using its own resources, and therefore may require assistance from external sources, which could include neighbouring jurisdictions, or those at the national or international levels.

Some disasters are classified as ‘major disasters’ as recorded by CRED (2023). In order to be recorded as a major disaster in the EM-DAT (the International Disasters Database), an event must meet at least one of the following criteria:

- Ten or more people reported killed
- 100 or more people reported affected
- Declaration of a state of emergency
- Call for international assistance

However, regardless of size, a disaster can still typically result in unexpected, unwanted, unpredictable, and unstable consequences. The impact of a disaster can be affected by the reliability of the prediction and warnings provided about the impending disaster. The United Nations (2022a) reports that good predictions and warnings save lives and can also reduce damage and economic losses. To support this stance, the United Nations (2022a) has established an initiative known as ‘Early Warnings for All’ with the goal of ensuring that every person on earth is safeguarded by early warning systems by 2027.

The National Strategy for Disaster Resilience stipulates that a collective effort is required to build disaster resilience and effective response to disasters. This collective effort comprises all sectors of society including all levels of government, business, the non-government sector, and individuals (Council of Australian Governments, COAG, 2011[1]). Effective planning, prevention, and response at all levels is becoming increasingly crucial, particularly with the changing risk patterns, which are discussed in the next section.

At the individual level, critical and urgent decisions might need to be made in the lead-up to, and during, a disaster. Commonly, these types of decisions might result in a person being forced to decide whether they should evacuate their home or not after emergency advice warnings have been issued and/or physical signs of a disaster can be seen. Individuals may

[1] Although this is an older document, it remains the current Australian Government policy.

feel they do not have sufficient experience, knowledge, or capabilities to make these decisions, and often due to the breakdown of communications during a disaster, individuals must make these decisions in isolation or without any further guidance or advice from emergency authorities. This creates extra pressure and stress on the individual in an already very intense and stressful situation with a disaster looming. The aim of this research is to explore the psychological impacts of decisions made at the time of a disaster. Given the widespread and worsening impact of disasters becoming more prevalent in the current climate, coupled with the changing risk picture and the psychological impact of disasters (which are described in the next section), the findings of this study can provide valuable insight and contribute towards future planning for disasters.

Drivers for the research

The main drivers for this study stem from a gap in the knowledge about the potential negative psychological impacts on a person who has made decisions and taken actions based on those decisions after they have had lived experience of a disaster, given the worsening and changing risk picture of increased global warming, intensified frequency and severity of disasters, and multiple concerning negative impacts after a disaster in terms of deaths, injuries, property damage, and the longer term psychological impacts on a person and economic losses.

1. Changing risk picture

Research from the Institute for Economics and Peace (2020) indicates that globally, the frequency of natural disasters [sic] has increased ten-fold since 1960, increasing from 39 incidents in 1960, to 396 in 2019. Furthermore, their research revealed that floods and storms accounted for 71% of the natural disasters [sic] between 1990 and 2019, and that the past five years have been the hottest on record. The United Nations Office for Disaster Risk Reduction recently published an updated report about the human cost of disasters, showing that extreme weather events have come to dominate the disaster landscape in the 21st century (UNDRR, 2021). According to studies by the World Health Organisation (WHO, 2018), climate change with global warming trends is increasing worldwide, accompanied by increasing numbers of extreme weather events, rising 46% between 2000 and 2013, and a changing and more variable climate is now recognised as the most likely, highest-impact global risk to society as a whole (WHO, 2018).

Compounding the alarming increase in the frequency of disasters and the worsening global warming trends are the dire consequences caused by the impact of disasters such as floods, earthquakes, tsunamis, tornadoes, mud-slides, disease outbreaks, and bushfires. According to the Centre for Research on Epidemiology of Disasters – CRED (2021, pp. 1-2):

> In 2021, the Emergency Event Database (EM-DAT) recorded 432 disastrous events related to natural hazards worldwide. Overall, these accounted for 10,492 deaths, affected 101.8 million people, and caused approximately US$252.1 billion of economic losses.

To keep pace with the worsening trends of climate change and disasters, global efforts such as the World Economic Forum's (2022) current mission to keep global warming under 1.5 degree Celsius in the next five years, are aimed at improving the state of the world and staving off disaster. The World Economic Forum is hoping to achieve this goal by working collaboratively with private and public sector leaders to increase climate commitments and develop private initiatives to reduce carbon dioxide emissions.

Another global effort to improve climate change is through the collaborative approach by the Intergovernmental Panel on Climate Change (IPCC) (2022) who "assess and report on the state of scientific, technical and socio-economic knowledge on climate change, its impacts and future risks, and options for reducing the rate at which climate change is taking place". One of the agency's working groups also reports on global climate change mitigation progress and examines the sources of global emissions. In reference to their latest report, the sixth assessment report, the IPCC (2022) concluded the following about the growing risks of climate change:

- The most important climate science update for almost a decade shows there is a narrow path to avoiding climate catastrophe, but only through immediate, deep and sustained emissions reductions. This may be our final warning.
- Climate change is already wreaking havoc around the world, with worse to come. Our decisions this decade will be the difference between a liveable future for today's young people, and a future that is incompatible with well-functioning human societies.
- Every choice and every fraction of a degree of avoided warming matters. The right choices will be measured in lives, livelihoods, species and ecosystems saved. The benefits of stronger action will be realized well within our lifetimes, and even more so for our children and grandchildren.

- Based on the latest science, and taking into account Australia's national circumstances, the Climate Council has concluded that Australia should reduce its emissions by 75% below 2005 levels by 2030 and achieve net zero emissions by 2035 (IPCC, 2022, p. 21).

In addition to the work of these agencies, the Sendai Framework for Disaster Risk Reduction 2015-2030 is a treaty adopted by United Nations (UN) member states and endorsed by the UN General Assembly to establish the principles of disaster risk reduction (DRR) at the global level. The treaty sets standards, priorities for action, and targets for stakeholders (primarily governments) to mitigate the impact of natural disasters and adapt to the changing climate (United Nations Office for Disaster Risk Reduction (UNDRR, 2015). The Sendai Framework for Disaster Risk Reduction 2015-2030 outlines four priorities for action to prevent new and reduce existing disaster risks:

(i) Understanding disaster risk
(ii) Strengthening disaster risk governance to manage disaster risk
(iii) Investing in disaster reduction for resilience, and
(iv) Enhancing disaster preparedness for effective response and to 'Build Back Better' in recovery, rehabilitation, and reconstruction (UNDRR, 2015, p. 14).

The Sendai Framework aims to achieve a substantial reduction in disaster risk and loss of lives, livelihoods, and health, and the economic, physical, social, cultural, and environmental assets of persons, businesses, communities, and nations over the next 15 years. To enable the tracking of development, signatories to the Sendai Framework are required to regularly report in a standardised fashion to the UNDRR on their progress in achieving its goals. This current study aims to provide insight into understanding the psychological impact on people who have made decisions during a disaster, and this understanding could inform future practice and future education and research. This is aligned with the goals of the Sendai Framework; to understand and reduce disaster risk and enhance disaster preparedness, response, and recovery, and strengthen resilience (UNDRR, 2015, p. 12).

In addition, the United Nations (2023) has developed 17 goals, known as the Sustainable Development Goals to assist in creating a better and more sustainable future for everyone. These goals are focused on tackling global challenges such as poverty, climate change, environmental degradation, and many others. The goals are designed to be interconnected, and to be achieved by 2030.

The agencies and initiatives mentioned above only represent a small sample of other programmes and organisations working in this space in an attempt to lessen the frequency and negative impact of disasters. While these initiatives demonstrate great potential for improvement in the future, the fact remains that, for now, disasters continue to increase in frequency and intensity, and to have widespread negative impact across the globe.

2. Psychological impact of disasters

In addition to the changing and worsening risk picture, the other main driver for this research study was the potential severity of negative psychological impacts on people who have experienced a disaster. As disasters become more frequent and severe, they will in turn affect the lives of more individuals, communities, and entire regions. Therefore, recognising and addressing these psychological impacts is crucial for effective disaster management to enable the building of resilience and supporting the wellbeing of affected populations.

Fortunately, some researchers have studied the psychological impact on people who have personally been exposed to a disaster who have been able to provide interesting insights. For example, Bryant et al. (2021) found that exposure to natural disasters is a leading cause of post-traumatic stress disorder (PTSD) among Australians. Bryant et al. (2021) conducted research following the Black Saturday bushfires in 2009 and found a marked increase in PTSD symptoms, with approximately 1 in 5 people suffering from PTSD, depression, and/or severe distress 10 years after the fire.

Furthermore, Keya et al. (2023) conducted a systematic review and meta-analysis of 48,170 studies, finding five main mental health illnesses that the surveyed people experienced after they had been involved in a disaster, being: generalised anxiety disorder (GAD), depression, substance abuse, adjustment disorder, and PTSD. It is important to note that not all people who have experienced a disaster will develop these conditions. Keya et al. (2023) found the prevalence of these mental health conditions varied between 2.2% and up to 84% for anxiety, and between 2.6% and 52% for PTSD of the people surveyed. However, there were many other factors affecting the prevalence of developing these mental health issues. Keya at al. (2023) suggested several other factors to consider that may affect a person developing these types of mental health conditions, including the type of disaster people had been involved in, the severity of the disaster, how many disasters in succession they had been exposed to, and the number of fatalities and levels of disruption to essential services.

According to Phoenix Australia (2024), PTSD is the second most common mental health disorder after depression, affecting about 5.5% of Australians. This means that at some point in their lives, over 1.5 million Australians may be living with PTSD at any given time. Phoenix Australia (2024) suggests that traumatic events such as disasters that may lead to PTSD can affect anyone, with three in four Australians likely to experience a traumatic event in their lifetime.

North and Pfefferbaum (2013) conducted a systematic review on the mental health response to disasters and found that exposure to a disaster is commonplace, and that one-third or more of individuals who have been severely exposed to a disaster, may go on to develop post-traumatic stress disorder or other mental health disorders. They also cautioned that one of the major concerns with this type of exposure to disaster and the potential ongoing mental health issues is that, unlike physical injuries, adverse mental health outcome of disasters may not always be apparent at the time of assessment as symptoms may develop longer term.

In addition to these studies, Stanley et al. (2024) conducted research on an experience which they refer to as ‘solastalgia’. Solastalgia is the distress that is produced by environmental change impacting on people while they are directly connected to their home environment (Stanley et al., 2024). Stanley et al’s (2024) study comprised 22 interviews and a quantitative survey with 592 members of bushfire-affected communities in Australia, and found that the participants who experienced greater solastalgia, also reported higher symptoms of post-traumatic stress and anxiety, and felt more anger and loss of control.

Stanley et al. (2024) suggested that the stronger correlation between solastalgia and PTSD could be because some of the symptomology of PTSD and solastalgia overlap. For example, distress from reminders of the trauma from the physical environment, such as the fire-affected landscape (re-experiencing), and the avoidance of wanting these reminders, could both be symptoms of PTSD and solastalgia. Strategies to minimise the negative effects of solastalgia are provided in greater detail in the Discussion chapter of this thesis.

The studies highlighted above have found several negative and unwanted psychological impacts on people who have experienced disaster and this, coupled with the worsening global risk picture, means that further research that can assist in reducing these negative psychological impacts is important. Before moving on, it will be useful to examine human

behaviour in terms of decision-making and subsequent actions taken, before and during a disaster, to frame why this study is necessary.

Human behaviour before and during a disaster

As Baltes and Birsan (2014) state, a disaster is a negative and unexpected event involving many people at the same time in which an immediate and impromptu response is required to attempt to minimise the negative impact on victims and their mental health, and ideally, to prevent or reduce incidences of ongoing longer term negative mental health concerns. To support this goal, more research is needed into human behaviour before, during, and after disaster to determine which factors influence decision-making and the subsequent actions taken by people so that the psychological impact of these decisions and actions can be examined. A literature review found several gaps in this area.

Council of Australian Governments (COAG) (2011) suggests that a collective approach by all sectors of society, including all levels of government, business, the non-government sector, and individuals, is the best way to prevent and respond to disasters. This collective approach is expanded on in more detail in Chapter Two under the overview of the Emergency Management framework. Nevertheless, at the individual level of this collective effort, families and individuals must make decisions with regards to planning and how to respond to a disaster and any unexpected problems that may arise for themselves. Some of these decisions might result in lifesaving actions being taken. Typically, these decisions involve whether a person should evacuate from their home or not. People may feel they do not have the confidence, training, knowledge, or experience to make such a decision; nonetheless, they feel pressured to make decisions given the immediacy of the threat. This study focuses on the psychological impact of the decisions made and the actions a person took at the time of a disaster.

Researchers such as Zsido et al. (2020), have investigated human behaviour during a disaster to explore which factors influenced a person's response and decision-making abilities. They found that individual differences in perception, evaluation of information, and personality affect a person's decision-making and response in a disaster. Zsido et al. (2020) subsequently developed the Emergency Reaction Questionnaire (ERQ) which can be used to predict a person's reactions and behaviours in an emergency. They surveyed a sample population of 1,115 participants using the ERQ to assess people's behaviour in an emergency. They found that:

> 15% of people in an emergency would act quickly, correctly, and completely organised. 15% of people surveyed would freeze and feel helpless and lost and without clue of how to act or react appropriately. The remaining 70% of the people surveyed were able to act, to some degree, however they showed varying degrees of disorganisation (Zsido et al., 2020, p. 6).

The results of the study by Zsido et al. (2020) are consistent with other studies that produced similar findings (Quarantelli, 1988; Drabek, 2012).

Thomas et al. (2009) suggested that the intensity of people's reactions during a disaster may be magnified for three main reasons: the sheer magnitude of the emergency, that is, many people are affected all at once; the time afforded to consider all the facts is considerably diminished and compromised; and there may be debilitated resources affecting reliable communication, for example, miscommunication or loss of telecommunications or power. It is useful to examine the factors that influenced people's responses in a disaster, as well as examining the impact of the disaster on people after it has subsided to attempt to lessen the negative impacts on mental health in future disaster planning.

Aim of the study

While research over the last few decades on psychosocial responses to disasters has increased, many questions remain unanswered. One such question is whether people experienced emotions such as regret, guilt, and shame after they made decisions and then took actions based on those decisions; for example, if they decided to evacuate or not during the disaster after emergency advice warnings had been issued or they could see physical signs of the disaster. The aim of this study is to investigate the longer-term psychological impacts on people who felt they needed to make these unexpected and unplanned decisions and take action during a disaster, and to attempt to understand these shared lived experiences through the identification of common themes.

This study explores factors that influence a person's decision-making process in the face of adversity in a disaster, so that an understanding can be gained as to why people made particular decisions and took the associated subsequent actions. The study also investigates whether a person experienced any lessons learned. However, the principal focus of the study is to examine the psychological impact of the decisions people made and the actions they took before and during a disaster. A review of the current literature revealed a shortfall of knowledge and evidence to underpin practice in this field.

Why is this research important?

This study is important because the findings can contribute towards future planning to achieve more positive outcomes and lessen the negative psychological impact on people who felt pressured to make decisions and take actions in a disaster. Understanding the mental health impacts of decisions made during disasters is crucial for improving future responses and minimising harm. By studying how making decisions during disasters affects ongoing mental wellbeing, this study can identify patterns and develop strategies to better support individuals in similar future situations. This knowledge can inform preparedness efforts, response protocols, and post-disaster interventions, ultimately helping to mitigate the negative psychological effects of disasters on affected populations.

Feelings of regret and guilt are self-conscious emotions that are tempered against social expectations and typically involve an awareness of one's failures and how a person could have behaved differently (Zhang et al., 2021). After an individual has personally experienced a traumatic event, they may be left with a psychopathology known as post-traumatic shame and guilt, in which acute and prolonged states of regret, guilt, and shame can develop (Wilson et al., 2006). This psychopathology can exacerbate a dysregulated state that may result in further consequential negative impacts such as extra trauma, violence, abuse, anger, anxiety, fear, sadness, terror, loss, bereavement, or humiliation (Wilson et al., 2006). While it has been found that these negative impacts may develop from a post-traumatic situation, as described by Wilson et al. (2006), it is unknown if the individuals in Wilson's study experienced these negative impacts as a direct result of the personal decisions and/or actions they took during the traumatic event, or whether the mental health consequences resulted from the lived experience of just being in the traumatic event itself.

Gaps in the current literature were found regarding whether post-traumatic regret, shame, and guilt, or other unwanted negative emotions, resulted from personal decisions and/or actions people took in a disaster. Preventing this type of post-traumatic regret, guilt, and shame is crucially important for the mental wellbeing of a person after they have experienced a disaster, particularly with the worsening and changing risk picture. This changing risk picture has resulted in the increased frequency and severity of disasters and more people being exposed to them. In addition, due to advanced communication technology and social media, there are multiple competing sources of information and advice. As a result, people are forced to navigate the information overload which may result in reduced trust in the information, delayed decision-making, and increased confusion. In such circumstances,

people need to then make decisions and take actions in response to the disaster that is unfolding very quickly, with potentially confusing and conflicting information creating heightened fear and anxiety in a very stressful situation. The effects of too much information are discussed in the next chapter.

Scope of the study

The study was targeted at persons above the age of 18 years who had personally experienced a disaster in Australia; for example, a fire, cyclone, or flood in the last ten years, and who had to make decisions and take actions during the disaster. The study gathered information from 15 participants about their lived experience of the disaster, including the decisions they made at the time, the actions they took, and the consequential psychological impact of those decisions and actions, including their ongoing mental wellbeing.

This chapter has introduced the research and provided an overview of the key issues and questions that will be addressed in greater detail in the following chapters. The next chapter focuses on what the literature says about how a person processes information in a disaster, what factors influence their decision-making, how the body and brain react when feeling threatened, individual and collective human behaviour during a disaster, and the psychological impact on the individual after they have experienced a disaster. The Australian Emergency Management Framework and emergency advice warning protocols are also discussed.

Format of this thesis

The thesis is comprised of nine chapters, in addition to the Bibliography and Appendices.

This first chapter has briefly outlined the study, including the aims and why the research is important, particularly given the changing and worsening risk picture. Chapter One has also defined the scope of the study and confirmed some of the terminology used throughout this paper.

Chapter Two presents the context for the research and examines the literature on emergency management procedures, emergency advice warnings, and the psychological impact on people who have lived experience of an emergency crisis situation, in addition to examining the Australian Emergency Management Framework. Other factors that may affect a person’s decision-making, including their resilience, level of mastery, locus of control, and preparedness are discussed, while social attachment theory, panic theory, and other

relevant factors to consider in an evacuation scenario during an emergency event are also explored in detail.

Chapter Three presents the methodology and methods used in the research and examines why the methodology was chosen for this study.

Chapters Four to Seven explore the themes that emerged from the study and include narratives from the interviews in the style appropriate to the methodology.

Chapters Eight and Nine include a discussion of the literature and the findings, drawing conclusions and suggesting recommendations.

This chapter has discussed the importance of exploring the psychological impact on people who had to make impromptu decisions in a disaster, such as whether to evacuate from their home or not. A literature search revealed gaps in the research that explored how the decisions people made during a disaster have affected them. This study is needed to fill a crucial gap in disaster research that addresses the specific psychological challenges faced by individuals making impromptu decisions, to inform strategies to better support and prepare people for future disaster situations.

CHAPTER TWO
CONTEXT AND REVIEW OF THE LITERATURE

Overview

Chapter One provided an introduction to the research, assessed why this study is important, and identified the gaps in existing knowledge which are intended to be addressed by this research. This study is important because the findings can contribute towards future planning to achieve more positive outcomes and lessen the negative psychological impact on the individual making decisions and taking action in the pressure situation of a disaster. Understanding the mental health impacts of decisions made during disasters is crucial for improving future responses and minimising harm.

This chapter provides further contextual information and a detailed analysis of the literature on emergency management, specifically concerning communication and decision-making during a disaster. This chapter also explores the factors that influence decision-making in a disaster, how the body and mind reacts when a person finds themselves in a traumatic situation, and the psychological impacts on a person after they have experienced a disaster. This information is provided so that readers can gain an understanding of some of the factors involved in the lead-up to a disaster that may have influenced the decisions a person made and the actions they took before and during the disaster.

A literature review was conducted that investigated and considered a wide range of information from relevant journal articles and books, grey literature, government and not-for-profit organisation reports and surveys, and many emergency management materials and websites. As part of the literature review, other disciplines were considered in addition to emergency management, including psychology, sociology, climate change science, and healthcare. In addition, both the Australian and international literature were explored using a wide range of search terms, such as emergency, disaster, crisis, critical incidents, disaster preparedness, emergency preparedness, disaster management, emergency management, decision-making, natural disasters, evacuation, behaviour and responses in disasters and/or emergencies, and regret, guilt, and shame in disasters.

It is important to understand the experience of making decisions, and to examine the longer-term mental health consequences of these decisions, to enable the reader to gain a better understanding of what it might have been like for the participants when they found

themselves facing a disaster situation where decisions and actions needed to be made, such as whether to evacuate from their home or not. Very real and personal first-hand information from this study is provided so that links and appropriate pathways for further research and recommendations can be suggested, with the aim of reducing and minimising negative psychological impacts from future decisions and actions made in disasters. The first part of this chapter focuses on the Australian Emergency Management Framework and policies, and how emergency advice warnings are formed and delivered.

Australian Emergency Management Framework

The Commonwealth of Australia Constitution Act (1900) stipulates that state and territory governments in Australia have primary responsibility for emergency management within their jurisdiction. However, when an emergency is more severe or widespread and exceeds the capability of a single state or territory, all levels of government may become involved.

At the Commonwealth level, the National Emergency Management Agency (NEMA, 2022) is a single agency that is able to respond to emergencies, help communities recover, and prepare Australia for future disasters. Their purpose is described as:

> In a changing climate and a vast nation facing more frequent and intense floods, storms, bushfires and drought, we ensure a better response in times of disaster, while driving long-term preparedness and lasting recovery. We deliver real impact and leadership, working with local communities, and in collaboration with state and local governments, so all Australians are better prepared for, and supported, during disasters and emergencies (NEMA, 2022, p. 1).

NEMA is responsible for:

i. The Australian Government Disaster Response Plan (COMDISPLAN) under which states and territories may seek Australian Government assistance
ii. Coordination of Australian Government physical and financial support following emergencies and disasters
iii. Emergency Management LINK (EM-LINK), which is an Australian online catalogue that gives registered users a quick, comprehensive, and up-to-date listing of emergency management-related geospatial web services for a chosen hazard and/or region

At the state level, in Western Australia, the State Emergency Management Committee (SEMC) is the peak emergency management body. The SEMC (2022) has the following responsibilities:

i. Advising the Minister on emergency management and WA's preparedness to combat emergencies
ii. Guiding and supporting public authorities, industry, business and the community to plan and prepare for efficient emergency management
iii. Providing a forum for community coordination to minimise the effects of emergencies
iv. Developing and coordinating risk management strategies to assess community vulnerability to emergencies
v. Providing a forum to develop information systems to improve communications during emergencies
vi. Arranging for the preparation of emergency management policies and plans for WA

The SEMC (2022) is responsible for the State Emergency Management (EM) Framework which is made up of legislation, policy, plans, procedures, guidelines, and a governance structure to facilitate effective management of emergencies in WA. The State EM Policy branch of the Department of Fire and Emergency Services (DFES) administers the review and consultation of the framework documents.

The third level of responsibility for emergency management within government in Australia is at the local government level. According to the WA Local Government Association (WALGA) (2022), local governments in Western Australia play a significant role in emergency management and are a key player in community disaster resilience, preparedness, and response. Local governments also have statutory obligations for recovery following an emergency affecting their community, and responsibility for community safety which includes community education and preparedness activities. It is important to note that, as mentioned earlier in Chapter One, and as highlighted in the National Strategy for Disaster Resilience (Council of Australian Governments, COAG, 2011), as part of the collective effort, individuals also have an important role to play and should take responsibility for themselves and not rely solely on government or other agencies for preparedness and response initiatives in a disaster. Furthermore, because local government is the closest level of government to the community affected by a disaster, they hold intimate knowledge about the environment and demographic features of their communities and are well positioned to respond swiftly, utilising local resources in an emergency situation. WALGA (2022) works

closely with all levels of government and industry groups to ensure that local governments are represented in emergency management policy matters that affect their communities.

It is important to note, as mentioned in Chapter One, that a collaborative approach is the most effective approach when planning and responding to disasters. The National Emergency Management Committee (NEMC) was tasked by the Council of Australian Governments (COAG) to drive and coordinate the development of the National Strategy for Disaster Resilience (the Strategy). A Working Group consisting of federal, state, and territory representatives under the auspices of the NEMC have developed the Strategy, which states that the

> application of a resilience-based approach is not solely the domain of emergency management agencies; rather, it is a shared responsibility between governments, communities, businesses and individuals. The purpose of the Strategy is to provide high-level guidance on disaster management to federal, state, territory and local governments, business and community leaders and the not-for-profit sector (COAG, 2011, p. 1).

The National Strategy for Disaster Resilience states:

> Given the increasing regularity and severity of natural disasters, Australian Governments have recognised that a national, coordinated and cooperative effort is required to enhance Australia's capacity to withstand and recover from emergencies and disasters. A disaster resilient community is one that works together to understand and manage the risks that it confronts. Disaster resilience is the collective responsibility of all sectors of society, including all levels of government, business, the non-government sector and individuals. If all these sectors work together with a united focus and a shared sense of responsibility to improve disaster resilience, they will be far more effective than the individual efforts of any one sector (COAG, 2011, p. 4).

In summary, emergency management in Australia takes place through a collaborative approach, and the severity and widespread impact of a disaster largely determines which of the levels of government will be involved. The focus of this study, however, is what happens at the individual level for people in disasters.

Within the emergency management framework, it is important to understand how the emergency information is shared within the community when a disaster is looming. Later in this chapter, a discussion of how people process this information will ensue.

How emergency information is officially disseminated in Western Australia

A resource called Emergency WA is the State's official website for community warnings and other emergency management information for disasters. Many government agencies such as the Department of Fire and Emergency Services (DFES), the Bureau of Meteorology (BoM), Geoscience Australia, the Department of Biodiversity, Conservation, and Attractions, and the Parks and Wildlife Service issue alerts and warnings on the Emergency WA site in disaster and emergency situations (Government of Western Australia, 2022).

In addition to self-sourcing information on the Emergency WA website, the Government of Western Australia (2022) encourages members of the community to follow DFES on social media sites such as Facebook and Twitter, listen to ABC local radio, and/or listen to 6PR local radio in the Perth metropolitan area. Further individualised warnings and information may come in a message or voice message from +61 444 444 444, which is the national telephone warning system used by emergency services to the local community within a defined area about potential emergencies that can pose a significant threat in that area.

There is an increasing and concerning trend of too much information, including false or misleading information, both digitally and physically being provided in a disaster. The WHO (2022) refers to this phenomenon as an 'Infodemic', cautioning that it can cause confusion and risk-taking behaviours that can harm health. The WHO (2022) define an 'Infodemic' as an "overabundance of information, some accurate and some not, that makes it harder for people to find trustworthy sources and reliable guidance when needed", and this has become a major threat to public health. Furthermore, the WHO (2022) cites that other negative consequences of too much information (referencing the recent COVID-19 outbreak) can lead to mistrust in health authorities thereby undermining the public health response, and intensification or lengthening of outbreaks when people are unsure about what they need to do to protect their health and the health of people around them.

The WHO (2022) has developed a management system for the Infodemic phenomenon which uses systematic risk- and evidence-based analyses and approaches to manage the Infodemic and reduce its impact on health behaviours during health emergencies. They aim to enable good health practices through four types of activities:

- Listening to community concerns and questions
- Promoting understanding of risk and health expert advice
- Building resilience to misinformation

- Engaging and empowering communities to take positive action

The Council of Europe (2023) also refers to a new phenomenon involving information pollution, which they call ‘Information Disorder’. They have identified three different types of information disorder:

- Misinformation is when false information is shared, but no harm is meant
- Disinformation is when false information is knowingly shared to cause harm
- Malinformation is when genuine information is shared to cause harm, often by moving information designed to stay private into the public sphere

The Council of Europe (2023) acknowledges that both the direct and indirect impacts of information disorder are challenging to quantify; however, they express very worrying concerns about its longer-term implications and are working actively to address the problem.

In addition to the mistrust and confusion that too much information from too many competing sources can cause a person, information overload has been found to have a detrimental effect on the quality of decision-making. Phillips-Wren and Adya (2020) explain this concept in more detail, whereby too much information being provided in rapid succession (that is, the decision-maker receives more information than they can process for effective decision-making), can lead to errors in judgement or an inability to make a decision at all, often with the decision-maker holding off making decisions while anticipating and awaiting more new information. Phillips-Wren and Adya (2020) caution that as the level of information exceeds the person’s ability to process it, selective attention is instead used to process some information at the expense of excluding other, possibly more relevant, information. In summary, information overload can have a paralysing effect in a disaster situation, making it increasingly difficult to distinguish vital information from secondary information.

In contrast, there have also been many instances of the opposite, whereby not enough information has been provided during a disaster. This has a similar effect to information overload, in that the resulting impact on people can be confusion and inaction during an event. Ripberger et al. (2014) collected responses from 4,004 residents who lived in tornado-prone areas of the USA. Their survey found that, as a result of frequent false alarms, missed alarms, and warnings, and the lack of any forthcoming information about an impending tornado from the National Weather Service (NWS: the agency responsible for issuing

tornado warnings), people placed less trust in the NWS, and subsequently, fewer people responded appropriately to the warnings. Ripberger et al. (2014, p. 54) concluded that,

> if intended behaviour predicts future behaviour, then these findings indicate that people who live in relatively error-prone areas are systematically less likely to engage in protective action in response to future tornado warnings than people who live in regions of the United States that are monitored and warned by frequent and relatively accurate advice.

People's faith and trust in the government's response to disasters

It is relevant to discuss how the general public perceives and trusts government management of disasters, as this could have a major impact on how a person responds to warnings and/or instructions provided by the relevant authorities during a disaster. Markus (2021), from the Scanlon Foundation Research Institute, conducted a study via a survey of 3,572 respondents, tracking the constant and the changing elements of Australian opinion over a fifteen-year period. He found that since the COVID-19 pandemic, approval of the federal government's response to the pandemic fell from a very high 85% in 2020 to 52% in 2021. Furthermore, the survey participants' trust in government had declined by 10% from 2020 to 2021.

To keep this in context, however, it is important to note that, according to Markus (2021, p. 38):

> In 2009, at the peak of popularity of the Rudd Labour government, trust in 'government to do the right thing' 'almost always' or 'most of the time' reached 48%. Indicating a widespread perception that Labour had failed to deliver on its promises, trust collapsed to 31% in 2010 and further declined to 26% in 2012, representing a fall of 22% since 2009. Trust remained in the range 26%-31% between 2013 and 2019. In 2018, trust was at 28%; in 2019 at 36%. In 2020, in the context of the pandemic, trust rose to 54% in July, the highest proportion recorded in the surveys and was at 55% in November. In July 2021, trust was at a lower level (44%), but still substantially higher than recorded in surveys between 2010 and 2019. A relatively low level of trust is indicated by those who are 'struggling to pay bills' or 'poor' (32%), 'just getting along' (37%), aged 18-24 (38%) and 25-34 (33%), and residents of Victoria (38%).

These statistics are important because, even though trust in government was higher in 2020 and 2021 (compared to previous years), still over half the population of Australia did not fully trust the government when asked to respond to the question asked in the Markus (2021) survey, "How often do you think the government in Canberra can be trusted to do the right

thing for the Australian people?" The sudden decline in trust from 2020 to 2021, brought about by the government's management of the COVID-19 pandemic, could have a flow-on effect to the next pandemic or natural disaster, in that the wider community might distrust the government's advice or warnings and may choose not to follow their advice.

The OECD (2023) provides a comprehensive overview of public governance, which includes indications on trust in public institutions and satisfaction with public services, as well as evidence on good governance practices. An OECD (2023) study found that in Australia, slightly higher levels of trust were found in local government at 43% compared to national government where trust was reported at 38%. Forrester (2021) also found slightly higher levels of trust in local and state government compared to Federal government in a survey of 500 Australian people about the government response to the COVID-19 pandemic. Forrester (2021) found that, on average, only 28 per cent of Australians trusted federal government, 35 per cent trusted state government, and 31 per cent trusted local government.

It is also important to understand that trust operates on a sliding scale and is not simply a black and white matter of trust or distrust. Rotter (1967) developed the 'Interpersonal Trust Scale' which is still commonly used today. This scale was designed to measure how much a person's expectations about promises made with regard to future behaviours by individuals or groups, can be relied upon. The scale uses five Likert categories of (1) strongly agree, (2) mildly agree, (3) agree and disagree equally, (4) mildly disagree, and (5) strongly disagree, relating to a range of potential behaviours and scenarios. Rotter (1967) examined a wide range of people, groups, and institutions with whom individuals interact and form relationships, asking participants to express their level of trust in figures such as parents, teachers, physicians, politicians, classmates, friends, and others. The results showed that the Interpersonal Trust Scale is a useful and reliable tool for providing an indication of the levels of trust towards subjects being evaluated.

Trust is defined by Edelman (2021, p. 4) as

> a set of beliefs regarding an organisation, held by an individual. It is an enduring personal orientation towards a company that is manifest in a willingness to take a meaningful risk on that company, whether it be giving it your hard-earned money, entrusting it with the success of an important event, or even counting on it to keep you safe. It also underlies the willingness to give 'it' the benefit of the doubt.

Endelman (2021) confirms how mistrust grows; that is, trust can be eroded either directly, or indirectly through the vicarious experience of seeing, first-hand, the experiences a friend or family member is having with an organisation, that starts to cause a lack of confidence, doubt, or suspicion in something or someone.

Another survey, conducted by the World Economic Forum (2022) via its Global Risks Perception Survey (GRPS), found issues with levels of trust in government, and ongoing concerns about how risks and threats were, and will, continue to be managed by the government since the COVID-19 pandemic. They surveyed 959 respondents comprising global experts and leaders from 124 countries to assess what they considered to be the biggest risks to their countries. They were asked to take a view of the past two years, with 'social cohesion erosion', 'livelihood crises', and 'mental health deterioration' being named as the main issues that have worsened the most since the COVID-19 pandemic began (at the time these participants were surveyed). Social cohesion was named as the fourth most significant threat to the world across all time spans (short, medium, and long term) and was seen as among the most potentially damaging over the next 10 years among those countries that participated in the survey. The consequences of the loss of social cohesion are described by the World Economic Forum (2022) as:

> Loss of social capital and a fracture of social networks negatively impacting social stability, individual well-being and economic productivity as a result of persistent public anger, distrust, divisiveness, lack of empathy, marginalization of minorities, political polarization etc (World Economic Forum, 2022, p. 94).

With the changing and worsening risk picture, as described by the WHO (2018), whereby the number of natural disasters are increasing, weather patterns are set to become more extreme, climate change is predicted to lead to population displacement due to drought, food and water insecurity, world conflict, and increased urban infill leading to dense population in concentrated areas, it is useful to keep in mind the aforementioned statistics for planning purposes. As mentioned previously, a collaborative approach with all stakeholders is most effective when planning and responding to disasters, and therefore, co-operation and compliance with emergency advice instructions is required by all sectors of the community, while high levels of distrust and/or dissatisfaction with previous government handling of disasters may impact motivation levels for compliance and/or cooperation.

Having studied ‘trust’ for the last 20 years, Edleman (2022, p.1) believes that it is “the ultimate currency in the relationship that all institutions: business, government, non-government agencies and media build with their stakeholders”. Edleman (2022) completed a study consisting of 30-minute online interviews across 28 countries (including Australia) with 36,000 respondents, and found that distrust is now society’s default emotion, with 60 per cent of respondents reporting their tendency is to distrust something until they see evidence that it is trustworthy.

It is important to recognize that the concepts of trust and distrust are more nuanced than simple definitions suggest. Researchers such as Bunting et al. (2021) propose that trust should be viewed as a "family of trust" encompassing trust, mistrust, and distrust, rather than as a binary or linear concept. According to Bunting et al. (2021), drawing on the work of other scholars, trust involves three distinct positions: trust as a confident belief, mistrust as a state of caution or uncertainty, and distrust as a more definitive rejection of someone or something’s reliability.

Edleman’s (2022) survey reported that 73 per cent of the Australian respondents in the survey worried about false information or fake news being used as a weapon. This was a fairly consistent response across all 28 countries surveyed, with the highest level of concern being 84 per cent in Spain and the lowest at 63 per cent in The Netherlands. The average level of concern globally across all countries surveyed increased by 4 per cent to 76 per cent from 2021 to 2022. It would appear to be a safe assumption that the lack of certainty and reliability about news sources would have a significant impact on how people respond to information being provided during a disaster.

Edleman’s (2022) survey found that trust in the media in Australia had declined by 8 per cent from 2021 to 2022, with 43 per cent of respondents distrusting the media. Edleman also surveyed respondents to ascertain what they needed to do to be able to increase levels of trust and decrease distrust in both government and media, finding that communication and transparency, taking a leadership role, effective exertion of power, long-term thinking and planning, holding others accountable, and effective change management were the most powerful qualities to restore people’s trust in the media and government.

Another complicating factor is the need to provide a fast and effective response to a disaster by government. In response to the COVID-19 pandemic, Dr Michael Ryan from the World Health Organisation (2020) stated, “be fast, have no regrets, if you need to be right before

you move, you will never win". While this was advice in response to a rapidly changing and worsening situation at the time, in hindsight, the decline in trust towards government may well be collateral damage from this advice. The challenge of government is to find a fast and effective response during a disaster that builds social cohesion and trust, which will lead to more positive outcomes once the disaster has subsided. This is indeed the corollary of the problem faced by participants in this study, whereby they had to make decisions and act in the heat of the moment, not knowing if the information and advice was from a credible and trustworthy source.

Researchers such as Levitin (2015) have investigated a psychological phenomenon whereby too much information can delay decision-making, and that people can often make a decision sooner if they have less information. Levitin (2015), a neuroscientist, examined the link between brain overload and information overload, suggesting that the brain has limited capacity to process new information, and that the more information a person receives, particularly in a heightened or stressful situation such as a pending disaster, the more stressed the person becomes, resulting in having increasing difficulty processing the information they have access to. Levitin (2015) found that this uncertainty causes problems with a person's rapid perceptual categorisation system, which results in decision overload. In this situation, the brain is in a constant state of distraction, which can lead to the brain being overstimulated, ultimately leading to brain fatigue and therefore a depleted state of mind. This reduced brain capacity can result in making slower, or no, decisions, and also the risk of potentially making poor decisions about important issues; for example, whether to evacuate or not during a disaster.

Impact of social media on emergency advice warnings

The Australian Communications and Media Authority (2022) reported that 99 per cent of Australians have access to the Internet, while 93 per cent used a mobile phone to connect to the Internet. There is increasing use of technologies that provide unfettered access to social media platforms and, as Bird et al. (2012) report, people are increasingly using social media during emergency events to seek up-to-date information on the unfolding disaster situation. Bird et al. (2012) suggests that the increasing trend of accessing social media via a smartphone is an overall positive, as it can provide instantaneous access to up-to-date information in a disaster situation, particularly when power disruptions may cut off access to television and radio.

Similar to this stance, other researchers such as Saroj and Pal (2020), have conducted intensive research in an attempt to ascertain just how effective social media is in a disaster. Saroj and Pal (2020) conducted a systematic literature review on articles from 2007 to 2019, and found 270 relevant articles to review. They analysed the relationship between disasters and online social media platforms, such as Twitter, Facebook, and Youtube, looking to analyse three issues:

1. The effect of occurrence of emergencies on social media.
2. When there is a sudden surge of posts in social media due to the disaster; how that deluge of data can be effectively extracted and processed to create situational awareness and minimize the damage due to the disaster.
3. How different social media posts can help different government and other agencies to get prepared and to take necessary steps to manage emergencies in order to minimize the loss (Saroj & Pal, 2020, p. 2).

Saroj and Pal's (2020) study found that people are using social media more intensely than ever before, and that they willingly share their private emotions, thoughts, images, audio, and video to both family and friends and also to the wider public in general. During a disaster, the number of people using social media becomes overwhelming and social media is often the first and only source of information for people about what is happening in the disaster. Saroj and Pal's (2020) study found that some of the information on social media is inaccurate and contains false information, including rumours; however, the instant and wide reach of social media can be overpowering, especially during a crisis. Furthermore, disasters can cause havoc and disrupt all forms of traditional communications; however, social media remains mostly unaffected and can often end up being the only source of communication for many people.

Saroj and Pal (2020) concluded that social media developments and enhancements are constantly evolving, and that it plays a critical role in the dissemination of information in a disaster. Saroj and Pal (2020, p. 17) stated that in order "to ensure credibility of messages, they should be sent from official social media accounts of government offices and reliable non-government offices and directed to ensure synergy and speed in communication among different stakeholders of disaster management".

Conversely, however, Jones et al. (2017) found the opposite effect with the use of social media during an emergency. They conducted a study involving 3,890 participants who had been present during a lockdown at a university after a shooter had been active onsite. Jones

et al's (2017) survey results indicated that when danger is imminent and official information is disseminated inconsistently, ambiguity is high and people start to seek information from unofficial channels such as social media platforms like Twitter and Facebook. Social media platforms often include unverified information and rumours, and Jones et al. (2017) found that people who relied on social media for updates on the unfolding situation found themselves exposed to increasingly conflicting information, while those who trusted this information reported higher levels of distress both at the time of the crisis and after the situation had subsided.

Jones et al's (2017) study demonstrated that when there is a lack of official communication in an emergency, rumour transmission tracked equally with community level negative emotion and lack of confidence. The study also showed that people who received conflicting information reported higher levels of acute stress, and additionally, those who reported direct contact with other people in the emergency via text message or phone calls, or if they used social media platforms during the emergency, were exposed to higher levels of conflicting information, again causing higher levels of acute stress. The findings revealed the importance of the need for official channels to release substantive updates at regular intervals during a crisis event, and for authorities to monitor social media for rumours to mitigate rumour exposure and the resulting potential unnecessary distress.

Starbrid et al. (2014) reviewed the impact of social media rumours after the Boston Marathon bombings and found that as the rumours began to spread on social media, they were very difficult to undermine with updates or corrections and they had the potential to cause massive negative consequences for the people who received and believed them. Starbrid et al. (2014) also found the more a person trusted the social media channel where the unofficial information was being broadcast, and the fewer official channels were providing updated and frequent information, resulted in the exacerbation of distress levels. Starbrid et al. (2014) suggested that further research on the psychological impact of rumour exposure, using methodological triangulation, is needed to understand the contextual features of, and community responses to, disasters. Starbird et al. (2014) clarified that the aim of future research should aim to better understand the function and impact of crisis-related communications, or the lack thereof, on distress responses, with the goal of making crisis communications and the media more effective together during emergencies.

Misinformation and effective communication in a disaster

It is now prudent to explore how people might hear and process emergency advice warnings in a disaster. The United States Department of Health and Human Services (USHHS, 2019) provides insight into how people process information in a crisis. They suggest that sometimes people might inadvertently simplify the messages they have heard, because when people are in stressful situations, they may feel there is an information overload. They become overwhelmed and may not hear all of the intended message due to juggling too many issues, and may not remember all the content of the message. The USHSS (2019) warns that people may also misinterpret or confuse the action required in a warning advice message, and may instead rely on old habits, or mimic the actions of others, rather than acting on the actual advice provided in the emergency warnings.

To assist in the dissemination of more effective communication in a disaster, the USHHS (2019) advises users to ensure the message comes from a credible source. They explain that in a crisis situation, people tend to hang onto long-standing beliefs about their security, and that to try to change those beliefs in a crisis might be very difficult; for example, a person might believe that the previous time they evacuated under the advice of emergency warnings, their house was fine, therefore it will be fine again and there is no need to evacuate. Experts who provide emergency advice warnings that go against a person's beliefs might be ignored or mistrusted, and people may be more likely to take advice from people they trust; therefore, ensuring messages come from a credible, trusted, and reliable source will improve the chances of the information provided being believed and adopted.

To combat this distrust in information, the WHO (2022) is stepping up its approach to managing misinformation as a result of the 'Infodemic' that occurred after the COVID-19 pandemic. The WHO (2022) reported that the 'Infodemic' caused confusion and risk-taking behaviours that can harm health and also created distrust towards the health authorities. The WHO (2022) acknowledges that with growing digitisation, information can spread more rapidly, which quickly fills information voids; however, it can also amplify harmful messages. The WHO is working collaboratively with partners across society to "bolster digital capabilities and leverage social inoculation principles to foster higher digital and health literacy, build resilience to misinformation, and deliver innovative ways to reach communities with reliable health information" (WHO, 2022, p. 3).

A report by The Lancet (2020) offers a theory as to who may typically spread misinformation and why:

> The groups generating and spreading egregious information are highly organised political or pseudoscientific bodies that are experienced at using nefarious techniques to propagate their narratives. These bodies can rapidly change their names and their key messages, moving from one campaign to another, and consciously seek and target vulnerable populations. Conspiracy theories and misinformation proliferate in times of uncertainty and fear. Such circumstances, exemplified by the COVID-19 pandemic, have occurred throughout history, and been manipulated by populist politicians, anti-vaccination movements, climate change deniers, and the tobacco industry. Protagonists and propagators of such fake news have been shown to be motivated often by political and financial gain (The Lancet, 2020, p. 291).

The Lancet (2020) reported on a study that examined the viewpoints of people about COVID-19 vaccinations and their relationships and connections with others on social media platforms, and found the following:

> An analysis mapping Facebook interactions between nearly 100 million people with various viewpoints about vaccinations showed that individuals cluster into specific, dynamic, interconnected groups. Although small, the anti-vaccination group (4·2 million people) was highly connected with those who were undecided about the importance of vaccinations (74·1 million people). The pro-vaccination group (6·9 million individuals) was isolated and had little interaction with those who were both undecided and anti-vaccination (The Lancet, 2020, p. 291).

Based on these findings, The Lancet (2020) recommends that health campaigners who wish to change people's minds about acting on official emergency advice, should focus their attention on those who remain open to both good and bad information, rather than trying to convince people who have strongly held beliefs who would be less likely to listen to new information and counter-arguments.

Similar to the collaborative effort required in prevention and response to disasters, as mentioned in the previous chapter, a collaborative global effort is also required for the effective management of information in times of crisis; as per The Lancet (2020), “dealing with the infodemic relating to COVID-19 will need a combined global effort involving health organisations, governments, media outlets, and individuals. The WHO has built myth-busting teams of internet savvy communicators to stamp out disinformation related to COVID-19” (The Lancet 2020, p. 291). The Lancet (2020, p. 292) reported that “The US Centers for Disease Control and Prevention has employed a global team of behavioural scientists and communicators to tackle ‘Infodemics’ as they relate to vaccine acceptance in low-income and middle-income countries”. Furthermore, they also reported that social media

platforms have increased their efforts to remove misinformation and lead users to more trustworthy sources. The Lancet (2020, p.291) concluded that the key to ‘Infodemics’ is, “not to produce even more information, but to address the environmental and social factors that make spreading misinformation easy”. This concept is explored more in the Discussion section of this thesis.

Another strategy the USHHS (2019) suggests for effective communication in a crisis is to ensure messages are consistent, because in a crisis situation, people tend to look for other or additional sources of information to verify the validity and consistency of the information, typically to assess its severity or genuineness. Similar to ensuring messages are from a credible source, people tend to seek confirmation from others before they act; for example, watching neighbours evacuate before evacuating themselves.

The USHHS (2019) also recommends the release of accurate messages as soon as possible after it is known that a disaster has occurred. The USHHS (2019) highlights how, in the absence of genuine and accurate messages, rumours start to spread and people start to speculate often with incorrect information and advice. The USHHS (2019) specifies that an effective message must do the following: “Be repeated; come from multiple credible sources; be specific to the emergency being experienced and offer a positive course of action that can be executed” (USHHS, 2019, p. 4). While the suggestions for effective communication in a crisis presented by the USHHS (2019) are a useful guide and indicate ideally how communication should be managed, it is not necessarily how information is actually communicated, and there remain many examples of people who have felt confused and conflicted by emergency advice warnings, as highlighted later in this thesis.

Cannaerts (2021) conducted a case study using semi-structured interviews with participants who had been affected by a gas explosion in Belgium, where 10 people were injured, 2 were killed, and 7 apartment blocks were seriously damaged. Cannaerts (2021) interviewed 12 participants from the gas explosion who were directly affected, and they also conducted a second observational case study of a training and rehearsal exercise in the same vicinity as the gas explosion, involving emergency management stakeholders. Their intent with both these studies was to review what constitutes effective communication strategies during public emergencies and how social media influences effective crisis communication. Cannaerts (2021) found that the most effective way to communicate during a public emergency is to ensure communication is diversified across different crisis stages and to a diverse range of stakeholders. Van der Meer et al. (2017) explained why communication

with diverse stakeholders is necessary, as different stakeholders will perceive a crisis differently and the combined collective understanding of the emergency situation can assist in minimising the negative consequences of the situation.

Cannaerts' (2021) study also recommended that different social media tools be used and that they should be closely monitored. In a nutshell, researchers agree that crisis and risk communication must inform and persuade the public in the hope that they will plan for, and respond appropriately to, risks and threats (Cannaerts, 2021; Van der Meer at al., 2017).

Herovic et al. (2020) highlighted what can go wrong when communication does not flow freely during a disaster, particularly when not enough communication is provided in the lead-up to the disaster and the communication is not spread widely enough to a diverse range of stakeholders. Their study was based on a thematic analysis of interviews with 21 earthquake scientists after the 2009 L'Aquilla earthquakes in Italy, where hundreds of civilians died and many more were injured and, as a result, manslaughter convictions of six earthquake scientists and one public official were enacted for failed risk communication. The convictions were later acquitted; however, the findings of the study suggested the following common themes should occur in future risk communications:

- Risk communicators are most effective when they translate scientific and technical information simply.
- Respond with facts to competing messages.
- Capitalise on relevant popular culture references, eg. the San Andreas movie, whereby, earthquake scientists looked for opportunities to collaborate with producers, to ensure the film conveyed the science accurately, when the film was released.
- Employ risk communication campaigns during 'quiet periods'.
- Acknowledge uncertainty.
- Soliciting and responding to feedback in the pre-crisis stage could help spokespersons clarify or correct any messages that are perceived by audiences as unclear or are simply not accurate (Herovic et al., 2020, p. 361)**.**

Physiological and psychological responses to threat

For greater context, it is considered useful to examine how the human brain and body reacts when a person feels threatened; for example, when a person becomes aware that a disaster has occurred which may directly impact them, it is important to try to understand the precursors to their thoughts and behaviours when they may need to respond or react to the disaster. Considering the physiological response is important, because our body processes

also affect our cognition; in other words, our thoughts do not exist in an ethereal vacuum but rather are formed within a body that has an influence on our perceptions and thoughts.

Researchers like Zsido et al. (2020) have explored the body's sympathetic nervous system, which activates in response to significantly threatening events. This activation prepares the body to confront the threat, resulting in increased heart rate and blood pressure, as well as the redistribution of blood to the muscles while diverting it from non-essential areas. This physiological response enables a quicker and more decisive reaction to the threat (Zsido et al., 2020).

When the sympathetic nervous system has been activated, it has been suggested that the body’s will go into an initial freeze response, allowing a person a fraction more time before they respond with a further action of either fleeing, or staying to fight the threat (Zsido et al., 2020). In a disaster, this freeze response could be when a person first hears an emergency advice warning, or when they see a physical threat; for example, a large cloud of smoke or flames in their immediate vicinity. A person’s freeze and then flight or fight response may activate, whereby their body has alerted them to the potential threat and they become aware that some type of action may need to be taken; for example, whether to evacuate or not. It is at this time a person may become confused, because they are unsure how severe the threat is, and they may struggle to make a decision on the best course of action to take.

In a disaster situation, these sympathetic nervous system responses may occur at different times for different people, depending on both the type of disaster; that is, the severity of the threat, and how much prior notice they have had about the threat; that is, the availability and frequency of emergency advice warnings. For example, a person may have been immersed in an emergency situation that had been evolving over a few days, such as flood waters rising, and therefore their freeze, flight, fight response may not have been activated until their house actually went under water and they found themselves trapped on their roof needing to be rescued. It is at this time that their freeze, flight, fight response may still be activated, when the threat has become imminent and real, rather than in the build-up to it.

Moreover, as Ledoux (2015) highlights, the body’s autonomic nervous system is made up of two components; the sympathetic (SNS) and the parasympathetic nervous systems (PNS). The PNS is a state of comfort, peace, and satiety; the nervous system that humans are built to live in. However, when a threat is perceived, the SNS is a self-defence state which is triggered. The sub-cortical part of the brain takes control and the body reacts to the

threat involuntarily and below the person's conscious awareness; in other words, their reactions happen without the person realising. Ledoux (2015) likens this process to that of a seesaw, with either the SNS or the PNS being activated, and when one is activated, the other is not. When one is dominant, the other is recessive, and they do not share dual dominance. Therefore, when a person is comfortable, at peace, and not perceiving a threat, the PNS is dominant; however, as soon as a threat is perceived, the seesaw goes the other way, and the body is in the state of the sympathetic nervous system. After the body has reacted to the initial immediate threat, there is then a far more complex ongoing decision-making process required.

Ledoux (2015) conducted multiple research studies to examine what happens to brain functioning when a threat is perceived and whether brain functioning increases or decreases, as this may also impact effective decision-making in a disaster. He used Positron Emission Tomography (PET), a medical imaging system, that provides information on body functioning on people who are not perceiving a threat and are relaxed and at peace. During this state of mind, the PET scan of the brain showed that the entire outside part of the brain called the neocortex (specifically, the frontal lobe prefrontal cortex) was lit up with electrical energy. Ledoux (2015) identified this is known as the executive part of the brain, which is responsible for judgement, reasoning, fine motor control, impulse control, intelligence, creativity, appreciation of beauty, and relational skills. The scan showed that when a threat is not perceived, this part of the brain is energised but calm, and better suited for rational thinking (Ledoux, 2015).

However, the moment a threat is perceived, and the longer the threat remains, without relaxation of the muscles, energy gets siphoned away from the neocortex and is instead delivered to the brainstem, to the thalamus and the basal ganglia, which are the reptilian centres, the self-defence centres of the brain. Once the energy has been shipped away from the neocortex, the capacity of the executive functioning has been significantly compromised, affecting much of the brain's decision-making capabilities in these situations (Ledoux 2015; Peters et al., 2017).

Gentsch and Kuehn's (2022) research describes how when a person has experienced an emotionally or physically painful experience, the prefrontal cortex via the amygdala, encodes and changes the sensory memory, so that if at any time in the future, a situation similar to the original sensory memory is encountered, the painful experience is remembered and relived. Gentsch and Kuehn (2022) found that the sensory memory becomes encoded with

terror, and it is the encoding of the sensory experience of the trauma with terror which causes post-traumatic stress disorder (PTSD). Levenson (2014) also conducted extensive research on the connections between the sensory memory, the PNS, and the SNS and found that not only do they influence a person's emotions, they also affect other psychological processes such as attention, cognition, learning, and memory which, in turn, influence a person's mental health, physical health, and wellbeing.

Using PET scans, Ledoux (2015) found that people who had been traumatised and were suffering from PTSD as opposed to those who were not, had five times more electrical energy than people who had not been traumatised, meaning their brains were working very intensively in a panicky, hyperactive state, rather than through a well thought-out calm approach. Furthermore, Gentsch and Kuehn's (2022) study found evidence suggesting negative body memories; in other words, negative bodily experiences of the past that have been stored in memory can influence behaviour and contribute to the development of somatic manifestations of mental health problems, including traumatic re-experiences, chronic pain, dissociative symptoms, and general somatic symptoms.

Researchers agree that the longer the perceived threat lingers, the more a person is left feeling drained, and subsequently, can lead to poor decision-making (Ledoux, 2015; Park et al., 2016; Phillips-Wren & Adya, 2020). The USHHS (2019) highlights how a person may experience a wide range of emotions before and during a disaster which can result in psychological barriers to an effective response. Some of these psychological states include uncertainty, fear, anxiety, dread, denial, and panic. The USHSS (2019) suggest that if a person lets their feelings of fear, anxiety, confusion, and dread grow unchecked during a crisis, they will most likely begin to feel hopeless or helpless.

The USHSS (2019) suggests that to mitigate the impact of these unproductive reactions, a person should acknowledge these feelings, be honest and empathetic with themselves and others, and try to take action. The USHSS (2019) suggests that taking action during a crisis can assist in restoring a sense of control and overcoming feelings of hopelessness and helplessness. If a person feels more empowered and in control of at least some parts of their life during the disaster, their feelings of panic and fear or anxiety may also reduce.

So far in this study, we have discussed how the brain perceives, processes, and responds to information and threats during a crisis or a threatening situation. This paper will now examine the literature in more detail on the factors that may influence decision-making in a

disaster and the psychological impact on a person after they have experienced a traumatic event.

What influences decision-making during a disaster?

Firstly, it is important to note that decision-making is not limited to a singular decision during a disaster, and that typically numerous decisions may be required at various decision points throughout the disaster. Dionne et al. (2018) highlights the evolving and constantly changing picture during a disaster and how a person's emotions and cognitions are influenced, and also how this may affect the decisions they need to make at various times throughout the disaster and at a particular crunch time when a decision has to be made, noting there may be numerous crunch times as the disaster unfolds.

It is useful to explore and understand the factors that affect decision-making in an emergency situation before analysing the impact of those decisions. According to Perry and Greene (2007), individual decision-making in an emergency situation, when an emergency advice warning is sent, includes three important milestones: risk identification, risk assessment, and risk reduction. Risk identification primarily involves the individual identifying that a threat exists. DeLamater et al. (2018) suggests that if a person does not see the risk, or their judgement of the risk is clouded by past experience or the presence of other people, then undertaking action to avoid the risk may be inhibited. Gantt and Gantt (2012) concur with this theory, suggesting that when there are other people in an area, the likelihood that someone will notice or take action after an emergency advice warning decrease, typically because when there are other people in close vicinity, individuals do not feel as much pressure to take action. Perry and Greene (2007) suggest several other factors that are important to a person in identifying and responding to risk, such as the credibility of the person or authority issuing the emergency advice warning, and any potential environmental signs such as smoke or strong winds.

In addition, as previously discussed, the presence of too much information can also result in slower decision-making. There is so much information that is broadcast during mass emergencies that it can become confusing and overwhelming. It is often unfeasible for humans to effectively find all the information they need, organise it, make sense of the information, and act effectively on it. This information overload can result in a slower reaction from a person, as people tend to wait to see what the next piece of information will be, rather than acting immediately (Hiltz & Plotnick, 2013).

The behaviour of other people in proximity to the threat can also affect a person's thoughts and reactions. For example, DeLamater et al. (2018) warn about a propensity for people to overestimate other people's abilities, and therefore, if that person does not seem perplexed or concerned about a potential threat, they may also assume the situation to be less threatening and will also be less likely to take action. DeLamater et al. (2018) suggest that individuals will seek confirmatory evidence from the people around them, rather than immediately evacuating, or taking other action as recommended by the emergency advice warnings. Perry and Greene (2007) suggest that multiple and frequent messages and warnings are required before individuals will realise there is a serious and imminent risk to themselves, and that action may be required.

Once the existence of a risk has been identified and accepted by an individual, and they are in a position where decisions need to be made, according to Perry and Green (2007), the next step is for the person involved to typically assess the likelihood of the threat occurring and the severity of the consequences of that risk. Aside from the factors already discussed, which affect a person's ability to assess the risk, i.e., the credibility of the person giving the emergency advice, Perry and Green (2007) suggest that two other factors are important in enabling a person to assess the risk, the warning message itself, including any relevant risk information, and the person's past experience with similar scenarios, even though typically, as Perry and Green warn, past experience is not a good predictor of the severity of the current situation. However, if a person's past behaviour was successful, they may be more likely to repeat their behaviour.

Perry and Green (2007) caution that even if the individual believes there is a risk present, if the likelihood and/or severity is low enough, they are unlikely to take protective action. An example of this was found with Hurricane Katrina in New Orleans, whereby many people failed to heed evacuation warnings preceding the hurricane due to the multiple previous warnings that had minimal impact. It is believed these warnings provided residents with a decreased belief in the credibility of hurricane warnings, and subsequently, decreased belief in the likelihood and/or severity of the consequences of Hurricane Katrina (Gantt & Gantt, 2012).

Perry and Green (2007) suggest that for an individual to take action to reduce risk, they need to believe that taking action will minimise negative consequences, that action is possible even in the current circumstances, and that it is not too late to act. Therefore, if an individual believes that negative consequences are inevitable because of previous inaction involving

protective measures, or there is not enough time or resources to take protective action, then the individual is more likely to do nothing and disregard the emergency advice warnings.

Gantt and Gantt (2012) also suggested that families often delay emergency evacuation until all family members are safe and accounted for. In addition to family members, Gurtner and Parison (2021) emphasised how further delays can occur when a person is acting to protect their family pets and animals in a disaster situation. They suggest that the desire to protect their animals for either their intrinsic value, economic value, or their attachment, affects their decision-making abilities, behaviours, and psychological responses that can endanger themselves and their family members with delayed responses to the emergency situation while organising the safekeeping of their animals.

Seeger and Sellnow (2016) highlight that when a person finds themselves confronted by a crisis, they can experience a momentary loss or lapse of reason, almost like a type of paralysis, and may be temporarily unable to make decisions because of an inability to make sense of what is happening. Typically, in a non-crisis situation, people have stable beliefs about issues such as safety, security, competence, and a sense of ontological security. In a crisis situation, these can be disrupted, and consequently, people are left feeling surprised, threatened, and time-pressured because an unexpected rapid response is usually required to address the threat.

The final theory discussed here is by Johnson et al. (2011), who argued that when a person considers whether to act on, or ignore, emergency advice warnings, they may instead be consciously or subconsciously relying on other factors that may lead them to some sort of action or inaction. For Johnson et al. (2011), some of these factors include observation or proximity of the threat, a person's own fear, the actions and movements of friends and family, and previous experience with emergency crises. Ultimately, Johnson et al. (2011) concluded that people will adjust their behaviour in accordance with the severity of the threat.

The effect of cognitive biases on decision-making

Other factors that can affect decision-making in relation to risk have been highlighted by UNDRR (2022) and are referred to as cognitive biases, which are quick shortcuts people unconsciously rely on to make decisions. This is how the brain functions to rapidly filter information. In a disaster situation, this can be useful as it saves the brain time and energy; however, as UNDRR (2022) cautions, it can also create errors in decision-making.

UNDRR (2022) highlights one of these types of bias, known as *action bias*, which they describe as the tendency to believe that action rather than restraint can solve problems. To illustrate an example of this type of bias, UNDRR (2022) used the recent COVID-19 pandemic and the effect it had on the 'toilet paper perceived shortage'. In essence, people felt panicked to buy and stockpile toilet paper even though there was no real threat of toilet paper shortages. UNDRR (2022) suggested that, at the time, people felt the need to act and do something, rather than doing nothing, and that taking action would solve the problem.

UNDRR (2022) also discuss another type of bias, known as *normalcy bias*, which they describe as someone doing something because they see others doing it. UNDRR (2022) cautions how this bias can lead individuals to underestimate risks because they observe others engaging in unsafe behaviours. For example, in a flood situation, if a driver takes the risk of navigating through high water, it may influence others to do the same, despite warnings advising people not to. UNDRR (2022) suggests that if people observe other people undertaking a particular behaviour, such as driving through flood water, it might give the impression that it is safe to do so.

Further negative consequences of cognitive biases are highlighted by UNDRR (2022) who suggest that cognitive biases can create resistance to action, investment, and regulatory measures and can also lead to individual and institutional decision-making processes that fail to consider the costs of disasters and the benefits of risk reduction. UNDRR (2022) recommend that understanding the impact of biases on decision-making can assist in the more effective design of disaster risk reduction products, policies, regulations, and standards.

Botzen et al. (2015) conducted a survey of homeowners in disaster-prone areas and found that people tend to either not pay attention to the potential consequences of risk, or they over-react based on their experience of a recent event. They suggest that many of the errors that decision-makers exhibit in dealing with extreme disaster events can be attributed to misperception of the risk coupled with cognitive biases, and also personal perceptions about whether they can make a difference through their actions. These can all affect decisions and actions taken in a disaster.

Meyer and Kunreuther (2017) propose that the failure of people to reason correctly in a disaster is due to six core biases, which implies that people might under-prepare for disasters. These biases are:

- *Myopia* – the upfront costs of making the property safer are perceived to be too high relative to the benefits of undertaking these measures
- *Amnesia* – tending to forget the lessons of past disasters too quickly
- *Optimism* – underestimation of the likelihood that losses will occur from future hazards
- *Inertia* – leads people to maintain the status quo when there is uncertainty about the potential benefits of investing in alternative protective measures
- *Simplification* – to simplify the situation when making choices involving risk
- *Herding* – making choices by observing the actions of friends and neighbours, who may also be just as ill-informed

Influence of other people in the vicinity on decision-making in a disaster

DeLamater et al. (2018) argue that affecting a person's decision to go into fight or flight mode is the concept of 'you see what you believe'. In other words, people respond to reality not as it is, but as they construe it to be in relation to their unique lived world and lived experience. As part of this construction of how a particular situation is, DeLamater et al. (2018) propose that a person also seeks confirmatory information from others, especially close family and friends, and that they check to see what other people are doing before they take their own action.

Another theory considers the effect of other people in a threatened space, known as the 'bystander effect'. This theory was originally proposed by social psychology theorists, Darley and Latane (1968), who formulated the bystander effect theory after studying 38 witnesses who stood by and did nothing when Kitty Genovese was stabbed, sexually assaulted, and murdered while walking home from work at 3am in Queens, New York. Darley and Latane (1968) claimed that news reports at the time suggested the 38 witnesses watched the stabbings but did not intervene or call the police until after the attacker had fled and Genovese had died. Darley and Latane (1968) attributed the lack of help by witnesses to 'diffusion of responsibility', whereby when each individual saw others witnessing the same event, they assumed that the others would take responsibility and call the police, and therefore, did nothing to stop the situation themselves.

However, it is important to note that according to Fischer et al. (2011), recent research suggests that the picture may be more complicated than what was reported at the time regarding the Kitty Genovese incident. Fischer et al. (2011) conducted a meta-analysis and found that while groups were a little slower to help than individuals, this difference tended to

disappear when it was clear there was a genuine emergency and also when someone needed to physically intervene to help.

Similarly, Philpot et al. (2020) conducted a systematic review of real-life bystander intervention in actual public conflicts captured by surveillance cameras. They studied footage from a sample size of 219 incidents across multiple countries and found that in 9 of 10 public conflicts, at least 1 bystander, but typically several, did something to help, and concluded that increased bystander presence is related to a greater likelihood that someone will intervene.

These studies on the bystander effect may offer some level of understanding as to why people might disregard emergency advice warnings, or be slower to act on them, particularly in situations where there are physical signs of a disaster; for example, rising flood waters. In other words, if groups of people are standing around and not taking action (for example, not evacuating), then according to the aforementioned theories, people may be slower to act, which can hinder appropriate action, as people may make assumptions based on the fact that no-one else is doing anything, or that someone else will do something if it is urgent or important enough. Gantt and Gantt (2012) examined the effects of panic and mass hysteria during emergencies and whether this influenced people's decision-making and their subsequent actions during the disaster. Their research referenced over 60 years of empirical studies on human behaviour in disasters and emergencies, finding that the research contradicted many commonly held beliefs about people's propensity to panic and exhibit other anti-social behaviours in such situations, and that the empirical data demonstrated that people's behaviours are actually prosocial and based on social relations and norms.

The 'Emergent Norm Theory', originally proposed by Turner and Killian in 1972, also supports the theory of prosocial behaviour in a crisis.. The theory suggests that crowds of people tend to form because of an unfolding crisis situation, and that the crisis itself forces people to abandon their prior conceptions of appropriate behaviour or societal norms, and instead, they will adjust their behaviour to the 'new' social norms that are decided by the crowd (Turner & Killian, 1987), thus promoting prosocial behaviour in a crisis situation.

Similarly, Mawson (2023), examined the social connections between people during threats and disasters and found that the more typical responses people exhibited in a disaster were not to immediately flee the situation, but rather to seek out the whereabouts of familiar people, and that not knowing where they were, or being separated from them, was more

stressful than the actual physical danger of the disaster. Mawson (2023) called this the ‘social attachment’ model of collective behaviour when a person feels threatened in a disaster, and that such attachment is part of the fundamental social nature of human beings. This is consistent with ‘Social Attachment Theory’ originally proposed by Bowlby in 1969 (Bowlby & Bowlby, 2018) which suggests that people are born with the need to forge bonds with their caregivers from birth and that these relationships and emotional bonds continue throughout a person's life and evolve to also include other close relationships such as romantic partners and other family members and friends, but the need remains to form lasting psychological connectedness between human beings.

The ‘self-categorisation theory’ developed by Turner in the 1970s (von Sivers et al., 2014) is also useful to consider in relation to disaster situations. It is a social identity approach that examines the link between a person’s own perception of their individuality, as well as their idea of their place or sense of belonging in a group of people. This theory suggests that a person can shift their focus from their own individual identity to their social identity and become part of a group, where their commonality with others becomes prominent, especially in an emergency situation where there is a looming threat. Von Sivers et al. (2014) examined numerous case studies to provide evidence of the fact that the more the participants identified as being part of the crowd, the more helping behaviour they exhibited towards others, and the less likely they were to push strangers aside in their attempt to escape a threat.

Psychological impact after experiencing a traumatic event

The factors that might influence decision-making in a disaster have been explored in the previous section, so it is now prudent to turn to an examination of the psychological impact on a person after they have experienced a disaster, to help the reader gain a broader understanding of what the entire experience may be like for a person who has been in a disaster. North and Pfefferbaum (2013) found that once a disaster has subsided, the most common negative psychological impacts on an individual typically include increased diagnoses of anxiety, major depression, adjustment disorder, acute stress disorder, post-traumatic stress disorder, and/or substance abuse. North and Pfefferbaum (2013) caution that unlike physical injuries, mental health issues may not be as obvious or apparent after a person has experienced a traumatic event such as a disaster. It is possible that people could experience either a new onset of a psychiatric disorder or an exacerbation of a pre-existing condition, with the extra psychological distress experienced (North & Pfefferbaum, 2013). In

addition to the physical, emotional, and psychological harm an individual may have endured as a result of their lived experience in a disaster, adjustments to life may be required to adapt to the post-disaster situation, especially if it involved loss of life or property. This is discussed in more detail in the Discussion section of this thesis. North and Pfefferbaum's (2013) systematic review also found that people with more intense reactions after a disaster were more likely to accept referrals to mental health services than those with less intense reactions.

Furthermore, it is important to consider the impact on a person when they have experienced more than one disaster, particularly if the events have happened in relatively quick succession. Leppold et al. (2022) conducted a scoping review to examine both the direct and indirect public health implications of multiple disasters. In their analysis of 150 articles, they found that exposure to multiple disasters had an increased negative impact on a person's mental and physical health and wellbeing, and that the potential risks of multiple disaster exposure far exceeded those of single disaster exposure. They also found that people with multiple exposures tended to become more complacent with emergency advice warnings and tended to disregard the advice, rather than adhering to the warnings. Leppold et al. (2022) also identified indirect negative public health implications of multiple disaster exposure, related to worsening public risk perception and trust in government responses to multiple disasters.

A study by Dana et al. (2022) also revealed that people become more complacent with following emergency advice warnings after they have had increased exposure to multiple disasters. Dana et al's (2022) study surveyed 1,637 participants immediately before a serious category 5 hurricane struck in Florida, USA, and then followed them longitudinally after the hurricane to assess their responses in the immediate aftermath of 2 successive hurricanes (Irma and Michael) in Florida. Dana et al. (2022) found the people who were subjected to multiple disasters over the three-year period had increased rates of post-traumatic stress disorder symptoms, generalised worry, global distress, and functional impairment. In addition, rather than acclimatisation to disasters over time, the findings showed increases in mental health problems, functional impairment in work and social settings, and future complacency towards adhering to emergency advice warnings.

Dana et al's (2022) findings closely align with a similar study conducted by Geng et al. (2018) who surveyed 858 adolescents in China who had suffered with repeated exposure to three earthquakes over a three-year period. Geng et al. (2018) also found increased rates of post-

traumatic stress symptoms and depression and concluded that adolescents who experienced one disaster may be more sensitive to the negative impacts of subsequent ones, resulting in additive effects of mental health problems. The findings from these studies and others like them, have critical implications for future risk planning and emergency preparedness in attempting to minimise the negative impacts of multiple events, particularly given the increased frequency of disasters and worsening climate change, as highlighted in Chapter One of this thesis.

It is important to keep in perspective how many people may typically develop ongoing mental health issues after they have had lived experience of a disaster. Aupperle et al. (2012) found that 50-60 per cent of people will experience a serious trauma in their life. However, only 5-10 per cent of people are estimated to develop symptoms qualifying them for diagnosis of post-traumatic stress disorder (PTSD) after the experience of a traumatic event. Aupperle et al. (2012) conducted a review of the current literature to ascertain which risk factors contribute to, or protect against, the development of PTSD. Using neuroimagery, neuropsychological, and clinical research, they found people who had subtle deficits in their attentional and inhibitory functions that predated the PTSD, served as risk factors for the development of PTSD, and related to the severity of the symptoms. This study suggested that this dysfunction contributed to hypervigilance and arousal symptoms, with a reliance on an avoidant coping strategy, which is considered a typical symptom of PTSD. This avoidant coping strategy could be another possible reason a person may ignore emergency advice warnings, particularly if they had previously been exposed to a trauma relating to a disaster and found it difficult to manage their emotions at the time.

The Australian Red Cross (2021) conducted a study on preparedness for, and recovery from, disasters using a survey comprising 156 participants who had experienced a natural disaster and found:

- Nearly two out of five (40 per cent) of respondents said they had not recovered (six months after the disaster) at the time of the survey.
- The amount of action taken and the type of training received appears to be influential in those who had not recovered; that is, those who had not recovered felt that the actions they had taken before and during the disaster were not enough (62 per cent vs 56 per cent for those who had recovered), and most importantly, those who experienced higher levels of stress (86 per cent vs 60 per cent for those who had recovered).

- Those who had not recovered mostly sought help from:
    1. Relatives and friends (72 per cent)
    2. Government assistance (44 per cent)
    3. Made an insurance claim (45 per cent)
    4. Health and mental health professionals (31 per cent)
- Participants who had not yet recovered had a significantly lower level of confidence in the actions they took during the disaster than those who had recovered, meaning that they took certain actions they were not convinced were the best at the time.
- Those who had not recovered yet were nearly twice as likely to have not felt in control as they experienced the emergency, relative to those who had recovered (Australian Red Cross, 2021, p. 11).

However, it is important to note that the Red Cross (2021) survey had limitations due to the relatively small sample size and was biased towards people who had taken preparedness actions, according to the inclusion criteria to participate in the study. The sample was also biased towards participants with high levels of household income because, as Boon (2013) found, people who have lower household incomes are less likely to take preparedness measures, affecting the generalisability of the findings. This study also highlighted a problematic dichotomy with the use of subjective terms such as ‘recovered’ and ‘not recovered’. These concepts are not binary in nature and not black and white in definition, and each person’s recovery journey is more on a spectrum and unique to their own sense of self-worth and personal and ongoing experiences after the disaster. This is discussed in more detail after an overview of the second Red Cross study highlighted below.

The Australian Red Cross (2022) conducted outreach into 16 local government communities with residents who had been affected by the 2021 cyclone, ‘Seroja’, which was declared a level 3 incident. A level 3 incident is defined by the State Emergency Management Committee (2016, p. 4) as, “an incident with State-level implications which requires the significant coordination of numerous agencies and resources from State, Federal or even international level. There may be several incident areas and a significant and ongoing impact to the community”.

Rather than surveying participants by asking direct questions to establish whether they felt “recovered or not recovered” from the disaster, the Red Cross (2022) outreach programme asked open-ended questions to facilitate conversation about how participants were feeling after the cyclone. The following list is an example of some of the questions asked:

- How have you been since the cyclone?
- Do you have concerns about other residents, family, friends or the wider community?
- Do you have support to help you?
- Do you have anything you need help with?
- What recovery initiatives do you think would benefit the community in the next few months?

This type of open-ended questioning was more subjective and non-binary, allowing the participants to authentically describe how they were feeling after the disaster. The survey found themes such as mental health concerns for other community members, increased stress and anxiety surrounding future storm and strong wind events, concerns for children and young people, with numerous community members expressing a need for specialist mental health and support services for young people and concern for the wellbeing of elderly residents. Survey participants also felt increased anxiety about the possibility of future disaster events, fearing the community would not be able to cope with further stress.

Another common theme from the survey was overall concern for the mental wellbeing of those who were heavily impacted by the cyclone, with the added pressures of insurance issues, personal, family, and health issues, and existing mental health issues, leading to increased stress and anxiety, and that these worries were negatively impacting and hampering recovery for many residents. The effects of this and several strategies to overcome these issues are explored further in the *Discussion* section of this thesis.

The Red Cross (2022) survey revealed that 16 months after the cyclone struck, 10 per cent of the people surveyed still experienced some negative impact to their wellbeing, but were managing to cope with day-to-day living, approximately 6 per cent were displaying distress reactions or admitted they were struggling, and 1 per cent felt they were not coping well.

These Red Cross studies provide useful information regarding the connection between how people with recent lived experience of a disaster felt about their emergency preparedness and their recovery after disaster. The statistics revealed that 18 per cent of respondents felt they had not recovered six months after a disaster, and many more were having ongoing struggles through the recovery process. The participants who felt they had not recovered well and were still struggling with their mental wellbeing, also felt lower levels of confidence in the actions they took before and during the disaster than those who had recovered, meaning that they took certain actions they were not convinced were the best at the time. In addition, those who had not yet recovered, were nearly twice as likely to have felt not in

control during the emergency, relative to those who had recovered. These types of findings are an important part of the impetus for this current thesis to explore the decisions and actions people took in a disaster, why they made those decisions, and what the impact of those decisions were. There appears to be a gap in the current literature with regards to this, and the findings can provide useful information for future planning of preparedness and response to disasters.

For further theoretical context, the Shattered Assumption theory, developed by Janoff-Bulman (1992), presents the idea that people generally hold three main assumptions about how the world makes sense to them: the world is benevolent, the world is meaningful, and people/self are inherently worthy. Janoff-Bulman (1992) suggests these assumptions allow a person to maintain their wellbeing and to navigate daily life and any issues that present along with giving them a sense of security and confidence about their place in the world. Stressful life events, such as experiencing a natural disaster with trauma involved, shatter these assumptions and people no longer perceive the world as benevolent and predictable, or themselves as competent and invulnerable.

Janoff-Bulman (1992) further suggests that when individuals experience an event that damages their worldview, inappropriate coping strategies, including self-blame, denial, and intrusive recurrent thoughts, quite often result. This can hamper people's growth, their sense of ontological security, and confidence in their future decision-making skills in the event of another natural disaster. According to Giddens (1991), an ontologically secure person is:

> Someone who is free from existential doubts and who is able to believe that life will continue in much the same way as it always has, without threat to the familiar representations of time, space and identity (Giddens, 1991, p. 256).

Giddens (1991) emphasised just how important a sense of ontological security is to a person, by suggesting that people sometimes even put their ontological security above their physical security. He qualified this stance by suggesting that people think of their homes as their 'safe place' and they reject the idea of having to defend their home in the event of a natural disaster. Giddens (1991) argues that people prefer to think of nature as a positive moral force, often failing to see it as a genuine danger, and suggests that people think of society as a competent protector of last resort and are reluctant to accept the need to protect themselves. Giddens (1991, p. 257) states, "being central to ontological security, such social

representations (of ‘home,’ ‘nature,’ ‘society’ etc.) are defended by avoiding perceptual shifts and behaviours that might challenge them”.

Giddens (2015) further elaborated on his theory of ontological security, by suggesting that the individual feels safe and protected by routines, norms, and beliefs, and that a routine provides a ‘protective cocoon’ and a ‘firewall against chaos’. When a person’s routine or ‘expected’ life is threatened, they may feel a sense of insecurity, uncertainty, and anxiety, potentially rendering them, at least temporarily, incapable of making decisions.

Building on the theory of Shattered Assumptions and Giddens (1991) theory of ontological security is what is known as the Terror Management Theory (TMT) propounded by Solomon et al. (1991). TMT suggests that a person’s worldview provides them with a sense of meaning, structure, purpose, and invulnerability; however, people are also very aware of their own impending death. TMT suggests that this awareness of death can bring on acute psychological ‘terror’ if something, such as a natural disaster, forces a person to face their own inescapable mortality.

TMT also has close links with social attachment theory, as previously discussed in this chapter, whereby, according to TMT, people feel the need to find purpose and meaning in their world in order to protect themselves from a fear of living an insignificant life and one way people find such meaning is to reassure themselves that they belong to an important group. TMT proposes that people are motivated to form close relationships with people they identify with who are similar to themselves; for example, through family connections, culture, religion, hobbies, etc.

According to Solomon et al. (1991), the anxiety individuals feel about their inevitable death drives them to adopt particular worldviews. These worldviews serve as a means to protect their self-esteem and sense of worth, helping them believe they have an important role and place in a meaningful world. In summary, the theoretical notions of Shattered Assumptions, Ontological Security, and TMT suggest that a person develops worldviews that provide a sense of safety, understanding, and stability for people about their place in the world that enable them to function on a daily basis. When these worldviews are disrupted for some reason, such as an impending natural disaster, they can be jeopardised, and people can suddenly find themselves feeling very compromised and uncertain of which actions to take.

Why don't people heed emergency advice warnings or mitigate risks?

A study by Harries (2008) examined why people do not protect their homes, even when they know they are located in a high-risk area for a natural disaster. Harries drew on both Giddens' (1991) research and Maslow's hierarchy of needs model (1943) to conduct a survey-based study on flood victims from the United Kingdom. According to Maslow (1943), people prioritise their needs, and at the very basic level, their physiological needs such as food, water, safety, and security as their highest priorities. Perceived threats to a person's physiological needs will take priority over higher esteem needs. Harries (2008, p. 482) suggested that "a person's sense of security is protected sometimes by a representational barrier through which information about the world is interpreted and whose function is to prevent hostile representations from upsetting the comforting balance of existing assumptions about that world". Harries describes how that representational barrier is rational in a sense, as it protects a person against ontological disruption and helps them to continue to feel safe.

However, as Harries (2008) points out, this representational barrier can also be dysfunctional, as it suppresses a person's awareness and initiative to take action to mitigate risk against natural disaster. Therefore, there is a conflict between measures that protect physical security (safety in Maslow's hierarchy) and those that protect a person's sense of ontological security which, as discussed earlier, is very important to a person's mental wellbeing. In essence, Harries (2008) is suggesting that if one threat is perceived as certain and is happening in the immediate term, while another threat is considered speculative or doubtful and longer-term, then the individual is more likely to tend to the immediate and certain need rather than trying to mitigate against a potential threat.

Harries (2008) elaborates on this notion by suggesting that when there is too much uncertainty about a potential threat, such as a flood, it can lead to debilitating anxiety, and the situation surrounding the potential threat can be too complex for the average layperson to understand. This can lead to the mental suppression of thoughts about the flood, thereby protecting the person's ontological security. However, this also results in a person not taking any preventative measures against the flood. Harries' (2008) study found this was the main reason British people living in a flood zone, with a high risk of flooding, were reluctant to take precautions to mitigate risks against the floods.

Harries suggests that in order to reduce this risk, uncertainty about the effectiveness of mitigation measures needs to be minimised. He cautions that if people have doubts about

which measure to take in order to reduce risks in a natural disaster, increased rates of anxiety and regret may ensue, which may increase the likelihood of inaction. Harries (2008, p. 488) states, “the discourse of flood-risk mitigation will gain a firmer foothold amongst at-risk public only if there is a reduction in the perceived risk of relinquishing the social representations that depict home as innately safe, nature as innately benign and the state as an innately competent and willing protector”.

Harries (2008) highlights the importance of the consideration of people’s emotions when planning for disasters and how emotional considerations influence responses to disasters. Harries (2008) suggests that emotions are primary to rational thought processes and do not necessarily enter consciousness at the time of the disaster, recommending that future research and planning for disasters “should look further than the superficial meanings of what people say and instead, explore the representations and discourses that shape their speech and actions" (Harries, 2008, p. 489). Additional research into the reasons why people do not heed emergency advice warnings, or mitigate against risk, is explored in the *Discussion* section.

So far, this study has examined the emergency management framework in Australia; how emergency information is disseminated; how much trust people put in the information and the government’s management of disasters; the impacts of our information ecosystem, including social media, on information during a disaster; the factors that affect decision-making; how people hear and react to emergency information; and the possible psychological impacts on a person after they have experienced a disaster. Following on from Harries’ (2008) suggestion of focusing on emotions during disasters, and the Wilson et al (2006) study regarding post-traumatic feelings of regret, guilt, and shame, the remainder of this chapter focuses on decision-making regret and how this phenomenon may affect a person when it specifically relates to their individual decision-making and the impact on family members and/or their animals.

Regret

Regret is defined by the American Psychological Association (2024) as “an emotional response to remembrance of a past state, condition, or experience that one wishes had been different”. Fernandes-Taylor and Bloom (2011) expand on this definition within a psychological context by suggesting regret is a psychological construct which is a negative emotional state resulting from a person comparing their current state to what it might have been if they had made a different decision. Fernandes-Taylor and Bloom (2011) believe that

regret is typically aversive and is a state that people actively wish to avoid. It is frequently associated with a sense of responsibility and self-blame for making an incorrect choice.

Fernandes-Taylor and Bloom (2011) further elaborated on regret and decision-making, finding that people often enact a post-decision information search, whereby they seek factual knowledge regarding the potential outcomes of forgone alternatives, even when they know the information cannot be acted on as it is in the past. Fernandes-Taylor and Bloom (2011) also found that while people regretted their actions in the short-term, they had a far greater sense of regret about their inaction in the longer term and they concluded that the negative emotions associated with decision regret are often comorbid with sadness, distress, guilt, and self-blame.

Furthermore, Matarazzo et al. (2021) conducted a study using scenario methodology with 336 participants and examined the effects of regret between people who had to make a forced choice as against those who were able to make a free choice. Matarazzo et al. (2021) found that people who had to make a forced choice, regardless of whether that choice resulted in action or inaction, had more intense feelings of regret than those who made free choices. In addition, they found that regret was always high when the outcome of the decision was negative, regardless of the type of choice. They also subsequently found that forced choice regret did not diminish with a positive outcome, contrary to regret elicited by a free choice. It is useful to consider Matarazzo et al's (2021) findings when examining the outcome of the decisions participants made in this study, as many of the decisions made would be forced decisions due to the imminence of the threat of a disaster.

Matarazzo et al. (2021) also found that anger was another strong emotion participants felt which arose from the self-attribution of a poor result, resulting in self-blame for having made a wrong decision. Matarazzo et al. (2021) found that regret, disappointment, and anger towards the circumstances increased with forced choices, while anger towards oneself increased with free choice. The emotions of anger, regret, and disappointment increased with negative outcomes, despite the type of choice.

As was briefly discussed in Chapter One, Wilson et al. (2006) highlighted a psychopathology known as post-traumatic regret, guilt, and shame that may result in further unhelpful negative emotions such as anger, lower self-esteem and self-worth, anxiety, fear, and sadness. In summary, regret is a consequential phenomenon which can have detrimental psychological consequences for a person.

Regret is a significant aspect of human experience, influencing decisions and perceptions of past actions. The emotion of regret and how it affected the participants in this current study is discussed in detail in Chapter Six. A gap in the current literature was found regarding the psychological impacts of decision-making during a disaster and whether people experienced emotions such as regret or guilt. Exploring the psychological impact of decisions made during a disaster is important because the findings can contribute towards future planning to achieve more positive outcomes and to lessen the negative psychological impacts on those who felt pressured to make decisions and take actions in a disaster situation.

This chapter has provided an overview of the current literature and policies on emergency management in Australia, including communication and decision-making during a disaster. The impact of too much information and social media on decision-making was also discussed. This chapter also explored the factors that influence decision-making in a disaster, how the body and mind reacts when a person finds themselves in a traumatic situation, and the psychological impact on a person after they have experienced a disaster. Understanding these factors contributes to a more comprehensive view of how individuals respond in the lead-up to, during, and after, a disaster. The knowledge gained from this study can inform preparedness efforts, training, policies, response protocols, and post-disaster interventions, ultimately helping to mitigate the negative psychological effects of disasters on affected populations.

CHAPTER THREE
METHODOLOGY AND METHODS

The first chapter provided the introduction, background, and substantiation as to why this research is important. Chapter Two provided more contextual information, and a detailed analysis of the literature on emergency management, specifically concerning decision-making during an emergency crisis and the potential resulting psychological impacts on a person after they have experienced a disaster. This chapter discusses the choice of methodology for the thesis, which provides the philosophical framework for investigating the lived experience and psychological impact on people who have experienced a disaster who had to make unexpected and critical decisions regarding their response to the disaster. The final part of this chapter describes the method used to undertake the research.

The study aimed to understand how a person experienced making their decisions during a disaster and what the resulting psychological impacts were for them. The study wanted to capture each person's authentic and personal experience in a disaster situation and also understand how the experience was for most people. The study aimed to provide new knowledge regarding what it was like for community members who made personal decisions and took particular actions during a disaster to enable new perspectives to be revealed in order to reach a deeper understanding about what it was actually like for these people during this time.

The WHO (2021) provides an overview of qualitative research methodologies that are commonly used in studies of health and disaster risk management, including narrative research, phenomenology, grounded theory, ethnography, and case studies. The WHO (2021) provides a short description of each of these methodologies and suggests that research studies should provide a detailed description of the approach to be used and provide justification of why a particular methodology was selected.

After consideration of the aforementioned methodologies, it was determined that phenomenology would be the most appropriate methodology for the type of research question this study explored. The WHO (2021, p. xxxvii) describe phenomenology as, "looking beyond an individual's raw experience, to seek understanding and describing the common meaning for many individuals". Urcia (2021) builds on this description by stating that phenomenology is "a research methodology that seeks to deeply understand a phenomenon's fundamental dimensions based on the inner essence and structure of

participants' lived experiences" (Urcia, 2021, p. 4). As the present study is attempting to understand people's lived experiences more deeply during a disaster, and it is anticipated that each person's experience will be subjective and unique to themself, this research study is more suited to a phenomenological approach. This approach will also endeavour to develop common themes from participants' experiences, both individually and shared, to describe the phenomenon itself.

Phenomenology

Cohen et al. (2017) expands on the definition of phenomenology, specifically when the research involves psychology and the gaining of knowledge of human behaviour, opinion, and experience. Cohen et al. (2017, p. 20) states:

> It is a theoretical point of view advocating the study of individuals' experiences because human behaviour is determined by the phenomena of experience rather than objective, physically described reality that is external to the individual.

Kee et al. (2019) studied the work of influential phenomenologists and their different, but convergent, approaches with a major focus on Husserl's transcendental phenomenology. Other phenomenological theories examined included Heidegger and van Manen's hermeneutic phenomenology. Kee et al. (2019) surmised that the common component of the various phenomenological theories is the philosophical nature of the study of the structures of experience and consciousness.

Husserl (1975) was one of the original and influential phenomenological theorists, defining phenomenology as the "science of the essence of consciousness, centred on the defining trait of intentionality, approached explicitly in the first person" (Husserl, 1975, p. 21). In other words, the study of different forms of experience just as a person experiences them from their own perspective, including consideration of the five senses of sight, hearing, touch, smell, and taste.

Husserl (1975) purported that the only thing that is unquestionable is a person's own conscious awareness, and this should be the starting place to build knowledge about the world around us. Husserl (1975) called his most fundamental methodological principle, "phenomenological reduction". He defined this by asserting that "he could justifiably 'bracket' the data of consciousness by suspending all preconceptions about it, including (and especially) those drawn from what he called the naturalistic standpoint" (Husserl, 1975, p. 25), in other words, the generalisation of descriptions from several accounts to draw out

themes that describe the phenomenon itself, and not just the unique experience of the individual, to see what is common or what the experience ‘is’.

Husserl (1975) believed that the actual physical existence of an object was not of importance. More importantly was that a person could at least conceive of the object. In this regard, objects of pure imagination could be studied with the same significance as information taken from the objective world. Husserl (1975) used the term ‘intentionality’ to describe this concept and concluded that “consciousness has no life apart from the objects or phenomena it considers, and it embodied the idea that the human mind is the only thing in the whole universe that is able to direct itself toward other things outside of itself” (Husserl, 1975, p. 34).

Horrigan-Kelly et al. (2016) examined Heidegger’s philosophy for application to interpretive phenomenological research and reported that, “Heidegger challenged existing Husserlian phenomenological ideals, arguing that Husserl’s approach was predominantly descriptive, espousing the essential structures of consciousness” (Horrigan-Kelly et al., 2016, p. 2). Horrigan-Kelly et al. (2016) explored the work of the two philosophers, which were closely aligned due to the fact that, initially, Heidegger was a student of Husserl and subsequently his research assistant. Researchers such as Laverty (2003) and Horrigan-Kelly et al. (2016) claimed that Husserl trained Heidegger in the processes of phenomenological intentionality and reduction.

Horrigan-Kelly et al. (2016) suggested that the main difference between Heidegger and Husserl’s approaches is that Heidegger advocated the ideals of his own phenomenology as one of the interpretation of experience and explication of ‘the meaning of being’. In other words, Heidegger believed that consciousness is not separate from the world, but rather is a formation of historically lived experience, and was interested in “acts of attending, perceiving, recalling, and thinking about the world and human beings were understood primarily as knowers” (Laverty, 2003, p. 24).

Ontology and epistemology

Before determining the actual methodology to use within the field of phenomenology when research involves human behaviour, Willig (2019) suggests that two key concepts about knowledge must first be understood, ontology and epistemology. These concepts need to be understood, as the ontological position will inform the epistemology and lead to the most appropriate methodology. Thus, according to Willig, in the field of psychology, from an

ontological standpoint, the researcher needs to be aware of their own fundamental assumptions about human beings and the world they live in. In addition, from an epistemological standpoint, the researcher should consider how best to develop an understanding of the participants and the meaning(s) of their experiences. Reflecting on both ontology and epistemology allows for the development of a theory of knowledge.

Laverty (2003) summarises and simplifies the similarities and differences between ontology and epistemology within the realms of phenomenology and hermeneutic phenomenology by suggesting that “Husserl focused more on the epistemological question of the relationship between the knower and the object of study and Heidegger moved to the ontological question of the nature of reality and ‘Being’ in the world” (Laverty, 2003, p. 25).

Willig (2019) elaborates on why it is so important for a researcher to develop a reflexive awareness of their own ontological and epistemological assumptions about their research, as these have a significant impact on research outcomes. Put simply, the researcher’s own ontological and epistemological assumptions inform and affect the research questions being asked and the methodological choices they make. Therefore, if the right questions are not asked, the researcher may presuppose and reinforce particular responses which can unintentionally sway the research findings.

Laverty (2003) recommends conducting a personal reflection in the preparatory phase of one’s research so that the researcher can become more aware of their own biases and assumptions and bracket them, or put them aside, so that authentic information can be elicited from the participant without risk of any potential preconceived ideas by the researcher contaminating the data being collected. Laverty (2003) suggests this reflection is seen as, “a protection from imposing the assumptions or biases of the researcher on the study” (Laverty, 2003, p. 28).

Before gathering data from research participants, Willig (2019) strongly encourages this self-reflection and reflexive awareness of one’s own ontological and epistemological assumptions by asking oneself the following questions:

- How do you know that you know something about a person?
- Is it possible to find out why someone did something? If so, how?
- What motivates people to act the way they do?
- To what extent can people know themselves? And what does it mean to know oneself?
- What are your beliefs about human nature, and what is the evidence in support of these?

- What is the role of language in arriving at an understanding of oneself and others? (Willig, 2019, p. 190).

Willig (2019) suggests that after pondering these questions, a person can identify in themselves any ‘taken-for-granted notions’ and whether they hold any quite specific and strong beliefs about human being and experience, that again, may influence the way questions are worded to participants, which could taint the data collection and findings.

As a result of my work as a psychologist working with people with trauma, and particularly those with post-traumatic stress disorder, and also as a result of my work as a volunteer conducting outreach with people after disaster events, I feel that one of my personal assumptions about their experiences was that they have must have inevitably suffered with large amounts of stress as a result of being in the disaster. This assumption may affect my interpretation of the participants’ accounts by my inadvertent reflections on their experiences using reframing words such as, “that must have been very stressful for you”, rather than allowing them to describe their experience using their own words. Being aware of such personal biases will hopefully ensure that I bracket them out during the interview process.

After self-reflection and awareness building, it is then important to consider the epistemology, ontology, and methodology that inform the study, as the answers to these questions form the paradigmatic stance for the current research. The epistemology for this current study is concerned with an understanding of the participants’ experience of the phenomenon, the meaning(s) of their experiences, and how this knowledge is created during the research process. It is important to link this to the knowledge that already exists on the subject matter. The literature review highlighted and clarified the knowledge that already exists, and because the literature review continued throughout the research study, any new information published was also accessed and considered.

In this current study, the participants who made critical and unexpected decisions about some sort of action, or inaction, during a disaster would typically have formed perceptions and opinions as to the evolving situation and made their own interpretation of the situation. These perceptions may have been affected by the individual’s prior experience in a disaster and any prior knowledge they had. However, each participant’s perceptions are unique and subjective as are their interpretations of the situation, and therefore, there is no universal truth. The onus then falls to the researcher to gather and interpret the data accurately to enable a meaningful description of the phenomenon itself to be developed in order to understand the personal experiences of the participants and for conclusions to be drawn.

Considerations regarding the choice of methodology

Smith et al's (2009) theory of Interpretive Phenomenological Analysis (IPA) is closely aligned to Willig's (2019) principles of self-awareness and self-reflexivity for research regarding human behaviour. IPA has a psychological focus on a person's lived experience that has involved a transition, trauma, personal change, personal identity struggle, or other personal experience issues. Van Manen (2017) distinguishes this theory from another type of IPA approach, stating that Smith focuses on the 'person' and on the personal experiences, views, and understandings of the individual rather than on the phenomenon itself.

Van Manen (2017, p. 778) focuses on the premise that the phenomenologist seeks to "explore the eidetic or inceptual meaning structures or aspects that describe the singular meaning of a certain phenomenon or event". While in theory, both these approaches to IPA apply to this current study, van Manen's ideas seem more closely aligned to the outcomes this research is attempting to achieve, that is, the identification of common underlying themes that emerge from a person's experience of decision-making in a disaster.

The choice of methodology will affect how the information mentioned above will be collected and interpreted in the most meaningful and authentic manner. In determining the most appropriate methodology to use, Kivunja and Bawa (2017, p. 28) suggest asking oneself, "how shall I go about obtaining the desired data, knowledge and understandings that will enable me to answer my research question and thus make a contribution to knowledge?" As part of the methodology selected, all the various components of the data, such as the participants, data collection, instruments used, and data analysis, need to be considered.

Kivunja and Bawa (2017) suggest that "in sum, the methodology articulates the logic and flow of the systematic processes followed in conducting a research project, so as to gain knowledge about a research problem. It includes assumptions made, limitations encountered and how they were mitigated or minimised. It focuses on how we come to know the world or gain knowledge about part of it" (Kivunja & Bawa, 2017, p. 29).

According to Sloan and Bowe (2014), there are two main approaches to phenomenology, the descriptive and the interpretive, as illustrated by Husserl and Heidegger. They outline the descriptive as simply describing a person's experience, and the interpretive as interpreting what the experience means within the context of the phenomenon being researched. Sloan and Bowe also highlight that the interpretive is known as hermeneutic phenomenology.

Hermeneutic phenomenology

As a research methodology, hermeneutic phenomenology is described by van Manen (2017, p. 775) as:

> The skill of reading texts, such as the text of transcripts- spoken accounts of personal experiences and isolating themes. The themes can be viewed as written interpretations of lived experience. The requirement is to examine the text, to reflect on the content to discover something 'telling', something 'meaningful' and something 'thematic'. Having isolated phenomenal themes, one rewrites the meaning of the phenomenon or lived experience.

Given this study is interested in eliciting personal information from people who have lived experience of a disaster, the use of hermeneutic phenomenology as the research methodology for this study would be most appropriate as it affords the best opportunity to 'give voice' to the participants' personal experiences of natural disaster and the decisions they made at the time. Thus, in essence, hermeneutic phenomenology requires the researcher to acknowledge both the role of history and the social influences on the interpretive description of the individual's experience.

Within the broader context of hermeneutic phenomenology is a process known as reflexivity. According to Sloan (2014, p. 1297), "reflexivity is a person's reflection upon or examination of a situation or experience, which can help in interpreting the meanings discovered, or add value to those types of interpretations". Sloan (2014) suggests that the effectiveness of reflexivity is impacted by the way in which the researcher is conscious of, and reflective about, the questions they ask and how the methods and the subject position might impact the data, or the psychological knowledge produced in a study. Van Manen (2017, p. 776) emphasises:

> Phenomenology is a project of reflection on the lived experience of human existence, where the reflection can be seen as being part of an investigation of the nature of a phenomenon. Reflection is not an explanation for the nature of a phenomenon but allows a description of it as it appears in consciousness, where 'nature' is that which makes something what it is, and without which it could not be what it is. Not only is the essence important, but the reflection by the observer also. Phenomenological reflection is not introspective but retrospective.

Sloan (2014) cautions to ensure that reflexivity is authentic and accurate and that the researcher is required to use empathy and draw on their relevant prior experience and skills to aid the accuracy of data analysis and interpretation of meanings.

It is appropriate to this study to further delve into some of van Manen's (2014) original ideas to describe the fundamental themes which he suggests permeate into people's everyday lives, regardless of their historical, cultural, or social situatedness. Van Manen's (2014, p. 303) original work described these themes as:

- lived space (spatiality) considers the world in which humans find themselves.
- lived body (corporeality) refers to how the physical body can reveal or conceal aspects of the person.
- lived time (temporality) considers subjective time, as opposed to objective (or clock) time.
- lived human relations (relationality) is concerned with how we relate to others in the world.
- lived things and technology (materiality).

Van Manen's (2018) reference to time and space is subjective and involves exploring concepts such as what it is like to live life in the present, what it was like to live in the past, and what would it be like living in the future. It also "allows for other ways of experiencing time; time as it is lived, the felt sense of time which also embraces the possibility of timelessness" (Van Manen, 2018, p. 102). Van Manen (2018) elaborated on the concept of 'spatiality' as an exploration of what it feels like to be in this world, such as the experience of living day-to-day at home in the world and the landscape that people find themselves in. In this research study, the experience of time is felt in an emergency situation, an experience that is unique for each person; for some, it may feel that time has slowed down, while on other occasions, or for others, time may feel fleeting.

Van Manen (2014, p. 303) suggests that "corporeality guides reflection to ask how the body is experienced with respect to the phenomenon". In the context of this research, this refers to participants' awareness of their own body and their reactions before, during, and after the disaster in the sense of both physical and psychological awareness; that is, how they felt and what physical/somatic symptoms they were aware of at the time.

Van Manen (2018, p. 103) expanded on this theory of 'relationality' by suggesting the world is an interpersonal space that is shared with others, and that existing in the world is an interactive experience. His theory of the experience of the lived body relates to a person's sense of physicality, their presence, and their connection to the world. Furthermore, van Manen (2018) describes this theory as the way in which people are most aware of being-in-the-world, that is, how people notice each other and gather knowledge about how other people are existing and their experiences.

Applying van Manen's (2014) theory of materiality to this research would involve exploring how the participants viewed the employment or engagement of material or immaterial processes, objects, and/or resources before, during, and after the disaster. This could include preventative resources, or agencies such as the State Emergency Services sandbagging before a flood or deployment of resources at the time, such as the DFES and police during or after the disaster. In the context of this research, materiality explores how the participants experienced the 'things' around them.

It is useful to consider these concepts in this study because these ontological themes are interrelated with each other and the participants in this study would have experienced these throughout their lives, and their experiences would have impacted their decision-making during the disaster, potentially without them being consciously aware of the existence of these fundamental themes.

Additionally, within the field of hermeneutic phenomenology, van Manen (2018, p. 30) believes there are six fundamental research activities, as listed below:

1. Turning to a phenomenon of interest
2. Investigating experience as we live it rather that as we conceptualise it
3. Reflecting on the essential themes which characterise the phenomenon
4. Describing the phenomenon through the art of writing and re-writing
5. Maintaining a strong and oriented relation to the phenomenon
6. Balancing the research context by considering the part and the whole

These research activities provide a useful framework within which to conduct this research. Investigating and understanding each person's unique lived experience and reflecting upon what they are saying while identifying themes is likely to reveal and draw out the truths of people's individual experiences. The aim of this study, via hermeneutic inquiry and interpretation, is to understand why a person made the decisions they did during the disaster, and what the resulting psychological impact was on them.

Method

The research question of this study and the main objective of this research is to answer the question, 'how do the decisions made during a disaster affect a person's mental wellbeing after the disaster has subsided and in the longer term'?

As previously mentioned, van Manen (2018) suggested six fundamental research activities when using a hermeneutic phenomenological approach to research. As this approach has been deemed as the most appropriate methodology for this study, the method intended to gather data follows these research activities. Accordingly, the following approach was used to open up communication and elicit as much authentic and personal information, unique to each person's lived experience of the disaster, as possible.

The first step that van Manen (2018, p. 30) suggests is, "turning to the phenomenon of interest". As outlined in the previous chapters, the literature review revealed a gap in the research examining the psychological impact on a person who had to make decisions about whether to take some sort of action or not during a disaster. Because of the worsening risk picture of climate change and the increase in severity and frequency of disasters worldwide, the repercussions on a person's mental health and wellbeing can be devastating and long-lasting if appropriate actions are not taken to prevent this.

Van Manen (2018) expands on this initial research goal by suggesting that hermeneutic phenomenology is fundamentally a project of a real person, whose experience may be unique to them, reflecting their singular perspective; however, by the exploration of multiple people's experiences, much richer and deeper data can be gathered, allowing for more meaningful interpretations and common themes to be drawn out of the data. This will assist in exposing the phenomenon itself, which will hopefully be able to contribute towards future emergency planning and prevention.

The second research activity proposed by van Manen (2018, p. 30), is "investigating experience as we live it rather that as we conceptualise it". This refers to the original lived experiences of people, involving the seeking of the understanding of the nature of the lived experience itself, as well as the researcher exploring all the modalities and aspects of the original lived experience. Through the participants' interviews, the original lived experiences of each person will be better understood.

The third research activity suggested by van Manen (2018, p. 30) is "reflecting on the essential themes which characterise the phenomenon". Here, the researcher should fully reflect on the phenomenon being explored and look for special significance and themes. Van Manen (2018, p. 33), suggests asking, "what is it, that constitutes the nature of this lived experience?"

It is important when applying the fourth element of research, which is, according to van Manen (2018, p. 30), “describing the phenomenon through the art of writing and re-writing”, to not merely write up the findings of the data. More so, as van Manen suggests, this is about giving people’s experiences a voice through writing about their experiences; it is about applying language and thoughtfulness to the lived experience. Van Manen suggests that through writing, thoughts that were internal to the participants become external, and subsequently, themes can be identified and interpreted through writing and re-writing. The process of writing and re-writing allows the researcher an evolving and thoughtful process of writing the interpretations, and through rethinking and rewriting, each iteration can be refined.

Maintaining a strong and oriented relationship to the phenomenon is the fifth research activity suggested by van Manen (2018, p. 30), through which he suggests that the researcher must remain strong in their orientation to the phenomenon that is the focus of the study, to prevent becoming side-tracked or to “wander aimlessly or indulge in wishy-washy speculations”. Van Manen also emphasised the importance of looking for genuine and authentic experiences, so that the researcher does not get tempted or caught up with superficialities or falsities.

The final research activity suggested by van Manen (2018, p. 30) is to "balance the research context by considering the part and the whole”. In essence, what he is suggesting is to use a back-and-forth or iterative movement between the parts and the whole. This is to ensure that the contextual aspects that become apparent from each small part of the data are consistent with the bigger picture and the overall research question. As van Manen cautions, it is easy to ‘get lost’ or confused within the vast amount of data being collected.

This concept of balancing the ‘whole’ and the ‘part’ was originally developed by German philosopher, Heidegger, in his 1927 book ‘Being and Time’, and is known as the ‘hermeneutic circle’ (Heidegger, 1962). The idea of the hermeneutic circle is to envision the whole, including how the parts of the whole interact with each other, and also how they interact with the whole. In this study, by adopting this thinking style, a much greater and deeper interpretation of the participants’ experiences in the disaster can be gained by both the interpreter of the data and the end reader.

In this study, consistent with the aforementioned approach, the participants’ own words are used to form and convey a primary understanding of their personal experience in the

disaster. As the experience (and the text) progresses, new understandings are ascertained as a person's experience in the disaster unfolds. These new parts are added to the previous parts, forming new understandings, with each new part of the story adding to the whole experience, allowing for a greater understanding and connection between the accurate and personal account of the person's experience of the disaster, the interpretation of that experience, and the end reader of the text.

After reviewing and reflecting on the data collected during the interviews in the current project, themes were identified through trying to understand the phenomenon of a person's lived experience in the disaster and the impact of their decision-making. Van Manen (2018) suggested a three-step process for the data analysis: the wholistic or sententious approach, the selective or highlighting approach, and the detailed or line-by-line approach. These approaches are discussed in more detail under the *Data Analysis* section of this chapter.

Data collection method

The next part of the *methods* section that requires consideration is the data collection method which is best suited to a hermeneutic phenomenological approach. Van Manen (2018, p. 163), suggests in-depth interviews are the best method for collecting data. Interviews serve very specific purposes,

> a means for exploring and gathering experiential narrative material, that may serve as a resource for developing a richer and deeper understanding of a human phenomenon, and the interview may be used as a vehicle to develop a conversational relationship with a partner (interviewee) about the meaning of an experience.

Thus, van Manen's approach encourages meaningful conversations.

Van Manen (2018, p. 170) further qualifies what he means by conversational interviewing by denoting that interviews should be semi-structured, avoiding unstructured or open-ended interviewing to ensure relevance to the research topic is maintained. Van Manen suggests that semi-structured interviews are more appropriate as they rely on the participants' memories and reflections to help them to revisit their experiences with the guidance of the interviewer.

Vandermause and Fleming (2011) recommend several useful strategies when conducting a hermeneutic interview:

1) Setting the tone of the research
2) Using incomplete sentences
3) Looking for assent
4) Returning the participant to the story

These strategies are endorsed by Vandermause and Fleming (2011) to enable effective and authentic capture of data. The first strategy of setting the tone can be achieved by the researcher asking an opening question that is representative of the research topic and using reflective affect and voice quality. The opening question should be viewed as a starting point to enable the participants to start reflecting on their experience.

The second strategy of “using incomplete sentences”, as recommended by Vandermause and Fleming (2011), is useful for allowing the participants’ experiences to flow naturally and enabling the researcher to guide, rather than lead, the interview. The idea behind this strategy is to allow the participants time to think and respond without pressure to answer direct questions.

Looking for assent, as suggested by Vandermause and Fleming (2011), is intended to double-check that the researcher’s understanding of what is being said by the participant is correct. This is achieved by periodically suggesting something like, “so what you are saying is …”. In this way, the researcher can question their own understanding periodically, looking for the participant’s affirmation that the growing understanding is correct.

Finally, “returning the participant to the story” helps to keep the participant’s account of their experience on track. Here, the interviewer needs to use their interviewing experience and judgement skills to ascertain if the participant might be diverting the conversation because they feel uncomfortable or anxious. In such a situation, the interviewer should then decide whether to continue with that particular line of inquiry, as they should be skilled enough to take such cues from the participant.

Interview experience of the researcher

As a practising registered psychologist, I am very experienced in conducting this style of interview. To contextualise this, in each interview, I am trying to establish the what, when, why, where, who, and how of a person’s experience. I am also looking for their perceptions, beliefs, opinions, thoughts, and feelings amidst their individual and unique personal experience as told in their own words. As per the American Psychologists Association (2022) directorate, a psychologist “uses a broad range of culturally informed and culturally sensitive

practices to help people improve their well-being, prevent and alleviate distress and maladjustment, resolve crises, and increase their ability to function better in their lives".

As an experienced psychologist, I have specialised knowledge about human behaviour and I use my interviewing skills on a daily basis to elicit accurate and relevant information, draw out rich insight, see the unseen, listen to the unheard, and give voice to the client. There are other skills I employ when conducting face-to-face interviews, such as interpreting silences and body language, flow and continuity, quality of the interaction, accurate description, and observing any other cues that may be present.

Other skills I employ to conduct good interviews include active listening, attentive and interactive body language, asking open-ended questions that will allow good in-depth responses, engagement, and connection, and both verbal and non-verbal prompting and responses, for example: nodding the head, eye contact, use of the phrase 'tell me more', and other techniques that might help the participant feel safe and comfortable enough to share their experience in-depth.

It is also important to get to know the participant prior to plunging too deep into the interview. This can be achieved by obtaining basic information about the participant prior to commencing the interview and by way of observation at the start of the interview. I always look for cues and information regarding their personality; for example, if they appear shy or uncomfortable talking to me, if they seem open or closed about sharing information, and what level of prompting may be required to allow them to open up more about their experience. I also consider their gender, age, and any other demographic characteristics that may make them feel uncomfortable when talking about particular topics.

The American Psychological Association (APA) (2022) recommends the following format for an effective interview:

1. Introduction – rapport building and establishing and maintaining trust
2. Open up – seeking the story about the experience
3. Connecting – the problems and issues
4. Understanding – participant-centred understanding
5. Follow up – going back and forth as necessary to seek accuracy

I felt confident in my ability to effectively and professionally conduct successful in-depth interviews with participants. Following the APA (2022) format for interviews allowed a less

intrusive approach and more of a two-way, flowing conversation between the participant and myself. I am experienced in navigating or redirecting an appropriate pathway if the conversation becomes uncomfortable or heads too far off-track. The questions I asked were open-ended, allowing for a deeper level of richness in the data, with each participant telling their own authentic story. This resulted in a variety of responses and themes, without being too restricted.

Critique of other types of qualitative data collection methods

There are a variety of other data collection methods that could be utilised in a qualitative study, and Busetto et al. (2020) highlight some of these, including questionnaires, document studies, non-participant observations, and focus groups. Each of these methods were dismissed as a potential method for gathering data in this study, because they would not enable the personal and unique lived experiences of the participants to be conveyed in sufficient detail and in a safe environment. This is particularly so with focus groups, as participants might be reluctant to reveal personal details of their experiences in the midst of a group of people, particularly if they fear they may be judged or negatively evaluated.

One of the limitations of using a written format for data collection is that it relies on certain literacy levels of the participants to be able to read and answer questions appropriately, and it limits free thinking (van Manen, 2018). Some participants may also be reluctant to engage if they believe they may have to respond through tedious written responses. Also, as van Manen (2018) cautions, set questions would be pre-written based on the researcher's ideas and would not allow for the free flow of conversation between the participant and the researcher. Busetto et al. (2020) state that "each choice of single or combined methods has to be based on the research question that needs to be answered and a critical assessment with regard to whether, or to what extent the chosen method can accomplish this – i.e. the 'fit' between question and method". Therefore, because of the unique and personal reflections from the individual's experience in a natural disaster, in-depth interviews were deemed to be the most appropriate.

Ethical Considerations

Ethics application

The research study was submitted to the Flinders University Human Research Ethics Committee (HREC) in April 2022. The submission included a completed HREC Application Form and copies of the proposed letter of introduction, participant information sheet, and

participant consent form. A copy of the application, including the proposed letter of introduction, participant information sheet, and participant consent form, is provided in Appendix 1. The type of approval applied for was ‘research involving human participants’ and a ‘snowballing approach’ (which is explained in more detail later). Ethics approval number 5629 was gained on 17/6/2022 and remained valid until 28/02/2025. A modification to the original ethics application was approved by the HREC on 17/05/2023, which allowed for the study to recruit participants Australia-wide, rather than the original ethics application and subsequent approval, which was limited to recruiting participants from Western Australia only. This modification also changed the original title of the research from ‘Exploring the psychological impacts of disregarding emergency advice warnings during a disaster’ to ‘Exploring the psychological impacts of decision-making during a disaster’.

The ethics application considered the following:

Voluntary consent and right to withdraw

Participants were made aware that their participation was completely voluntary, and that it was their right to withdraw at any time. Potential participants were advised they would be required to sign a consent form if they chose to take part.

Confidentiality

Participants were advised in the information sheet and consent form that:

> Only researchers listed on this form have access to the individual information provided by you. Privacy and confidentiality will be assured at all times. The research outcomes may be presented at conferences, written up for publication or used for other research purposes as described in this information form. However, the privacy and confidentiality of individuals will be protected at all times. You will not be named, and your individual information will not be identifiable in any research products without your explicit consent. No data, including identifiable, non-identifiable and de-identified datasets, will be shared or used in future research projects without your explicit consent.

Participant involvement and potential risks

The following information was also provided in the information sheet and consent form.

> If you agree to participate in the research study, you will be asked to:
>
> • attend two, fifty-minute interviews with a researcher that will be audio-recorded. Interviews may be conducted face-to-face or online (participation is entirely voluntary)

> • respond to questions regarding your views about the emergency advice warnings, the situation, and how you responded
>
> • potentially a short follow-up interview for clarification purposes (if required). The researchers do not expect the questions to cause any harm or discomfort to you. However, if you experience feelings of distress as a result of participation in this study, please let the research team know immediately.

Distress support lines and phone numbers were also included on the form. Participants were also advised they could terminate the interview at any time.

Researcher risks

There was a small risk to the researcher undertaking the study, as there could have been a potential personal safety risk through meeting the participants in either their own home or at a community facility. In addition, there might have been a possibility that the researcher could become distressed at hearing some of the personal accounts of the participants' experiences. These risks were given careful consideration, and the researcher minimised the risks by advising her contact people where and when the interview was to take place, and to check in and out once the interview had been completed. Also, debriefing with appropriate people where required would help minimise any distress experienced by the researcher if needed.

Expected benefits of the research

These were described in the introduction letter and the information sheet as follows:

> The sharing of your experiences will help to fill in some information gaps as to why people respond differently to emergency advice warnings and what the psychological impact is of doing so. This study is important because if it is found that the psychological impact of a person's decision making during the emergency crisis has had a detrimental effect on their wellbeing, the study can contribute towards future disasters, with better information and more positive outcomes.

Furthermore, the benefit to the individual participants is that this study might provide them with the opportunity to consider if their response in the disaster was the most appropriate, and if not, how they might prepare differently or reconsider their actions to respond differently with more positive outcomes if they are ever involved in another disaster.

Special ethical considerations

There are no special ethical considerations relevant to this study. The information sheet stated that I am ideally targeting the following demographics:

- Have personally lived through/ experienced a disaster; for example, a fire, cyclone, or flood in the last 10 years in Australia
- At least 18 years of age
- Made a decision/response after emergency advice warnings were given during the disaster

Recruitment was initially expected via the Western Australia Emergency Management Office and the National Resilience and Recovery Agency, Australian Government. Using a snowball recruitment approach, further participants would be identified, and therefore, it was anticipated that only people who could speak English competently, could fully understand the nature of the research, and were capable of giving informed consent were invited to take part.

Recruitment of participants

The following method of recruitment was listed on the ethics application form and approved by the HREC:

> I will initially approach the WA Emergency Management Office and National Resilience and Recovery Agency, Australian Government for advice on how to access participants. Once interviews commence, I expect to use the snowball technique. I will also approach some contacts as per supervisor's advice. I might use a direct approach to organisations, for example, recovery agencies, using the attached flyer for recruitment. I will also advertise on social media platforms, namely Facebook. Once potential participants have been identified, I will request permission to email them, to provide them with more information about the study and include a copy of the flyer and the information and consent form. I will follow this up with another phone-call, or via email if they are willing to proceed to the next stage of interview in the research study.

Participants were not remunerated for taking part and participation was completely voluntary and consensual.

Rationale for this type of recruitment

A very specific cohort of people was required to enable this study to be conducted within the hermeneutic phenomenological framework. Accordingly, participants that had lived experience of making decisions in a disaster, and who were willing to share their personal and unique stories were targeted. It was believed the most efficient and appropriate way to source this type of demographic was to approach the agencies listed above, and also to advertise directly on social media so that potential participants could be correctly identified.

How participants were recruited

As mentioned above, recruitment was initially intended to proceed through government agencies. Numerous agencies were approached; however, they were unable to assist with sourcing participants, mainly due to confidentiality and privacy concerns with giving out personal contact details. Subsequently, Facebook advertising was used as the main source of recruitment, along with the snowball technique, my supervisors' contacts, and word-of-mouth.

Once contact had been made with a potential participant, an email was sent to them with the information sheet and consent form. A follow-up phone call or email was then made to the potential participant to ascertain if they fully understood the information in the flyer and consent form and if they were willing to proceed with the interview and participate in the research.

If the participant was willing to proceed, a time and place was organised when and where to meet, typically at a quiet and private place such as a coffee shop, as agreed with the participant. At the outset of the initial interview, the information and consent form were then explained to them again, and it was made clear that they could withdraw from the interview and study at any time if they chose to with no consequences. Participants were then invited to read the flyer and consent form themselves and were offered the opportunity to ask questions if they had any queries or concerns before signing the consent form and proceeding with the interview.

If a participant was interested in receiving feedback about the study once it had been completed, they were advised where they could find a copy of the thesis on the Flinders University website. Participants were also offered the opportunity to receive a short dot-point summary of the pertinent findings of the study if they wished, particularly for participants that do not have access to Flinders University (in WA) or who wish to read the entire thesis.

Receiving this information was completely voluntary and if participants wanted to be provided with the short summary, I obtained their email address at the final interview. The email addresses are stored on a separate confidential list and kept with the data. When the study has been completed, I will email a copy of the summary data to those participants who have requested feedback.

Once the consent form had been signed and the participant was happy to proceed with the interview, the interview commenced. More information about the interviews is provided in the next chapter on *Data collection.*

Number of participants

To enable a wide range of responses and viewpoints to be gathered and potential themes to be identified, it was anticipated that between 10 and 15 participants would be interviewed.

As per the recruitment plan, targeted emails were initially sent with details of the research, including an information flyer, to numerous government agencies, including the Department of Fire and Emergency Services, the Department of Communities, Red Cross, various local governments, local recovery groups, and Disaster Relief Australia, requesting assistance with the sourcing of potential participants. None of these agencies were able to assist with the identification or recruitment because of confidentiality and privacy concerns. Therefore, it was decided to advertise on Facebook and to use this as the main tool to advertise the research to source participants. I joined many regional Facebook community groups in towns where I knew there had been a disaster in Western Australia in the last 10 years, including Kalbarri, Parkerville, and Ravensthorpe, and in various south-west community groups. These were public community groups and open to anyone applying to be accepted into the group, with all posts having to be approved by the group administrators before they could be published on Facebook.

I then constructed a brief and simple advertisement as follows, to attract attention to my study and source potential participants:

> PhD research project
>
> We know that a natural disaster such as a fire, flood, or cyclone can take a heavy toll on a person's mental wellbeing. Natural disasters are increasing in frequency, severity, and intensity. More research is needed to lessen the psychological impact on a person after they have personally experienced a disaster.

> This research study builds on existing knowledge and focuses on a person's mental wellbeing after emergency advice warnings have been given and decisions are made during a disaster. The research is important because unique personal experiences fill in information gaps and contributes to future planning for future disaster events. Please message me if you have been affected and are willing to participate in an interview with me as part of my PhD research project. Thank you.

As a result of advertising in this way, people messaged me stating they might be interested in participating in my study. In total, 14 people contacted me. Out of the 14 contacts, I did not proceed to the interview stage with 4 of them, as their experience in a disaster fell outside of the 10-year timeframe I was looking to research. For example, 1 person had been in a disaster which had occurred 24 years prior. The remaining people met the criteria for the study, and I proceeded to send them more details on the study including the information and consent form. I also had 4 people approach me offering to participate in the study via word-of-mouth through my supervisor's contacts, and I approached 1 person directly that I had seen appear on a television show about choices and the impacts of those choices on their mental health. These 5 people all met the criteria I was looking for and agreed to participate in the research, and therefore also proceeded to the interview stage. In total, 15 participants were interviewed.

Rationale for participation selection criteria

As part of the selected methodology of hermeneutic phenomenology, the study aim was to draw out the unique and personal experiences of participants who had experienced a disaster. The criteria specified was:

- Have personally lived through/ experienced a disaster; for example, a fire, cyclone, or flood in the last 10 years in Australia
- At least 18 years of age
- Made a decision/response after emergency advice warnings were given during the disaster

The inclusion criteria were limited to people who had experienced a disaster within the last 10 years, to enable more accurate recollection of their experiences as, according to Ricker et al. (2016), memories fade with time. Ricker et al. (2016) referred to this as 'decay theory', suggesting that details of events can deteriorate with the passage of time, despite aspects of the actual event itself being remembered for a long time. Therefore, to maximise accurate memory recall of the disaster, it was deemed most appropriate for the event to have occurred within the last 10 years.

Furthermore, because the study targeted people who had made decisions after emergency advice warnings had been issued, it was assumed that the decision-maker would typically be an adult, and to allow for a more adult perspective of the experience, the exclusion criteria included people over the age of 18 years. For logistical reasons to allow face-to-face interviews where possible, and for participants to have a good command of the English language, the study was restricted to people who had been involved in a disaster in Australia only.

The criteria requiring the person to have personally lived through/experienced a disaster; for example, a fire, cyclone, or flood, was not limited to these events, but instead was used to demonstrate what sort of emergency events the study was looking to examine. This led to interviews with people who had experienced a variety of events, including fire, floods, cyclone, and a tornado.

Detailed gathering and analysis of each participants' personal profile such as their gender, age (apart from the inclusion criteria to be over 18 years of age), and any prior personal experience in a disaster, was not deemed necessary because with hermeneutic phenomenological research, as van Manen (2014, p. 313) states, "we borrow people's experiences in a vicarious sort of way, as a means to inform ourselves. Therefore, we are not primarily interested in the specific experience of the participant but rather, we aim to collect examples of possible human experience in order to reflect on the meaning within them".

Because personal profile information was not deemed necessary or relevant to this study, and so that participants' confidentiality and anonymity were protected throughout the thesis, participants are simply referred to as 'Participant 1', 'Participant 2', and so forth throughout the thesis, and are not in any particular chronological order of timing of event or timing of interview.

The interviews

Place

Interview time and location was flexible and arranged to suit each individual participant. The only requirement was that they felt comfortable in the venue and that it was a quiet and confidential place to talk openly.

Format

The format was flexible, with open-ended questions in a semi-structured style to allow for open and honest dialogue, with plenty of flexibility for participants to recall their authentic and personal experiences. Therefore, I did not have a set of rigid questions to ask, but used the following questions to warm up and open up the conversation and to guide me:

1. Can you describe the emergency crisis event you were involved in, ie. when, where, what was the situation?
2. Can you recall what the emergency advice warnings were saying?
3. What decision did you make?
4. Why did you decide to take that action?
5. How do you feel about that decision now? ie any regrets, would you decide differently if it were to happen again? If yes, why? If no, why?
6. What other factors or further info would you need in the future if you wished you would have made a different decision?

Transcripts

All participants were advised that their interview would be recorded on the researcher's iPad, and their verbal consent was gained before the interview commenced. The interviews were later either transcribed by myself or via a confidential automated transcribing service. Each transcript was then read through, with the interview replayed to check for accuracy.

Data analysis

To make sense of the data collected within a hermeneutic phenomenological study, van Manen (2018) suggests using a 'thematic analysis' approach. He stresses this is not a rigid or structured activity, but more an attempt to try to unearth something that is telling or meaningful. Van Manen (2018) suggests finding themes within the data from the participants' experiences. Van Manen expands on this definition of a theme and how it relates to the phenomenon being studied by the researcher as follows:

> (1) Theme is the experience of focus, of meaning, of point.
> (2) Theme formulation is at best a simplification.
> (3) Themes are not objects one encounters at certain points or moments in a text. A theme is not a thing; themes are intransitive.
> (4) Theme is the form of capturing the phenomenon one tries to understand. Theme describes an aspect of the structure of lived experience (Van Manen, 2018, p. 91).

Van Manen (2018, p. 92) then elaborates on how to isolate themes in the data analysis, suggesting three approaches:

1. *The wholistic or sententious approach* – attending to the text as a whole and asking, what sententious phrase may capture the fundamental meaning or main significance of the text as a whole and then trying to express that meaning by formulating such a phrase.
2. *The selective or highlighting approach* – listening to, or reading a text several times and asking, what statement(s) or phrase(s) seem particularly essential or revealing about the phenomenon or experience being described? These are then circled, underlined, or highlighted.
3. *The detailed or line-by-line approach* – looking at every single sentence or sentence cluster and asking, what does this sentence or sentence cluster reveal about the phenomenon or experience being described?

Van Manen (2018) recommends reading and re-reading the data transcripts as many times as necessary to isolate themes using the above approaches. He also mentions some professional companies that can be paid to help identify isolated themes; however, he preferred that the researcher does this, as they conducted the interviews and were best placed to identify the themes. They could also record observations during the interviews, such as body language, voice tone, and other non-verbal cues, giving more meaning to the words spoken by the participants. Throughout the data analysis process, I was consistently the only interpreter of the data, which enabled me to bring my own perspective and experiences to the data. Accordingly, when the data were being analysed to identify themes, I was able to apply the intimate knowledge I had gained regarding non-verbal cues, such as tone and body language, enabling richer data to be revealed.

The research question of this study and the main objective of this research is to answer the question, ‘how do the decisions made during a disaster affect a person’s mental wellbeing after the disaster has subsided and in the longer term’? To enable an answer to this question, it is necessary to draw from a person’s unique lived experience, and this phenomenological study aims to elicit valuable information regarding that lived experience from the people who were there and making decisions in the heat of the moment at the disaster site.

Exploring the themes

The thematic analysis began by firstly identifying the themes that emerged from each individual’s unique personal experience, and then secondly, considering the data as a

whole, to isolate themes that came up repeatedly for the participants. Common themes were identified, thus drawing meaning from people's experiences during the disaster, with the aim of understanding what the psychological impact may be on a person who had to make decisions about whether to take some sort of action (or inaction as the case may have been) during a disaster.

Moments of time

Van Manen (2014) discusses the relationship between phenomenology and moments of time and reiterates the fact that phenomenology reflects on specific moments to allow a more in-depth exploration of the phenomenon. Van Manen (2014) suggests a useful method to reflect on these moments is to firstly read all the transcribed textual narrative while listening concurrently to the verbal narrative, and then to give titles to these moments for extra clarity about what is being said. At the same time, the researcher should ask themself, "does this title of the moment of an experience exemplify the moment of the phenomenon being explored?" In response to this question, the researcher should then adjust, rename, or remove the title as appropriate.

After careful analysis of the data, it was evident that four specific moments in time emerged from the research findings after a thematic analysis was conducted. These moments were summarised as:

1. **The Prelude** – (before the disaster actually struck, typically after emergency advice warnings had been issued)
2. **The Crisis** – (during the disaster, the disaster had struck, and participants were in the midst of the event)
3. **The Aftermath** – (after the disaster had subsided, typically weeks to months after the disaster had subsided)
4. **The Long Haul** – (year/s after the disaster event)

Careful consideration was then given towards how best to convey, in written form, the authentic and very personal lived experience of each participant, so that an accurate picture could be painted of the experience so the reader can fully immerse themselves in and understand what the experience must have been like for each participant. Van Manen (2014, p. 240) highlights an effective process for this writing, which he refers to as the "Vocative or Hermeneutic Phenomenological writing approach; the process of creating a text that is a

thick description accurately capturing and communicating the meaning of the lived experience for the informants being studied".

Van Manen (2014, p. 240) describes five methods that can be used in the first instance to describe phenomenological texts, to help make it 'speak' to the reader. These are:

1. The revocative method aims to bring experience vividly into presence (through the power of experiential anecdote, expressive narrative, or quality imagery) – so that the reader can recognise unreflectively (unmediated by reflection or thinking) these experiential possibilities of human life.
2. The evocative method is the evocation of nearness. Readers should experience a form of recognition in reading the text. Using anecdotes assists in both grounding the text in the concrete and also makes the text recognizable to the reader who responds by saying "this could be me." In this context the evocative method of writing allows the text to speak to the reader inducing a sense of nearness and intimacy with the phenomenon and facilitating an understanding of the phenomenon.
3. The invocative method is the classical rhetorical practice of intensifying one's text. When highly intensified, the text becomes iconic, and each word is essential to its overall meaning.
4. The convocative method refers to the ability of the text to speak deeply and meaningfully to its reader; strong phenomenological texts have a pathic power.
5. The provocative method is the ethical impact of the text. Strong phenomenological texts should induce a sensitive and thoughtful awareness of one's world. It should raise questions about how one should be, how one should respond, and what one should do. That is, rather than distancing the reader from the phenomenon as existing in the world, the text should draw the reader attentively, reflectively closer to his or her being in the world.

An evocative method of writing was selected to best describe these moments in time and the collective experiences of the participants. Explicit themes emerged from each moment highlighted, with the evocative method of writing being used to draw the reader into the experience, so that a sense of closeness can be experienced by the reader. The first theme, *chaos and confusion; trying to make sense of my world*, was experienced by all the participants and on more than one occasion during the disaster. Two sub-themes were found under this theme, *confusion; I did not feel safe anymore* and *I felt helpless.* This theme and sub-themes are discussed in more detail in the next chapter.

Data management and storage

Flinders University has a Management of Research Data and Primary Materials Policy, dated June 2016, which outlines how research data management and storage must be handled. To adhere with this policy, the following actions were articulated and approved in the ethics application:

- Data, including personal information and contact details, will be stored and used for at least 5 years from the date of publication.
- Data will be stored electronically.
- The data will only be stored internally within Flinders University.
- Only the research team will have access to the data.
- The raw data will be individually re-identifiable.
- Identifiable information of the participants will not be disclosed.
- A separate, secure list of participants and codes and all the transcripts will be kept securely, thus enabling re-identification should any participant wish to have their data withdrawn.

In addition to these data security measures, I ensured that any hard-copy notes and transcripts have been kept in a locked filing cabinet. Any information typed and stored on my computer has been secured with a password and backed up to the Flinders University Cloud storage facility. I will be the only person with access to my laptop.

The interviews were recorded on my iPad for subsequent transcription and interpretation. My iPad is also password-protected, and I am the only person who has access to the iPad. My supervisors had access to the de-identified data during supervisory discussions and as part of writing this thesis.

Limitations of the study

Recruitment of participants

The introductory flyer for recruitment stated that the study was seeking participants who could meet the following criteria:

- Have personally lived through/ experienced a disaster; for example, a fire, cyclone, or flood in the last 10 years in Australia.
- At least 18 years of age.
- Made a decision/response after emergency advice warnings were given during the disaster.

This was quite limiting and specific, as the study was seeking to collect data about people who had personally experienced a disaster in Australia. This excluded potential participants

from overseas who may also have had interesting stories to tell, which would have been useful data to capture; however, due to logistical reasons and the time and expense of working with overseas participants, this was not possible, particularly as the intent was to conduct face-to-face interviews where possible. Moreover, a person's experience and the meaning they attach to it are contextual, and the experience of being in a disaster in Australia and all that this entails with support services and other factors involved may be very different to that in other countries. As mentioned earlier, this current study is aiming to draw meaning from people's experiences during a disaster, with the aim of understanding what the impact may be on a person who had to make decisions during the disaster and to allow common themes to be identified. By concentrating on a specific geographical area, unique insights and common themes that are relevant to the Australian context can potentially be revealed. This approach allows for a more targeted and contextualised understanding of the challenges and effects faced by decision-makers during disasters in Australia.

Number of participants

In total 15 participants were interviewed, which was sufficient for quality of data and thematic saturation. The table below shows a summary of the demographics of the participants.

Demographics of Participants

Participant ID	Gender	Age range	Disaster Type	State of Disaster
1	Female	50-60 years	Fire	Western Australia
2	Female	65+ years	Fire	Western Australia
3	Female	30-40 years	Cyclone	Western Australia
4	Female	40-50 years	Fire	Western Australia
5	Female	50-60 years	Tornado	Western Australia
6	Female	30-40 years	Fire	Western Australia
7	Male	40-50 years	Fire	South Australia
8	Male	30-40 years	Fire	South Australia
9	Female	40-50 years	Fire	South Australia
10	Male	40-50 years	Fire	South Australia
11	Female	30-40 years	Fire	Western Australia
12	Male	40-50 years	Fire	South Australia
13	Male	40-50 years	Cyclone	Western Australia
14	Female	30-40 years	Flood	Queensland
15	Male	40-50 years	Fire	New South Wales

Limitations of the researcher

As a psychologist, I am experienced in conducting personal interviews and listening to people's hardship experiences and deep emotions and helping to draw out more in-depth

reflections. However, I have not personally experienced living through a disaster; therefore, I may have missed some cues and not asked enough appropriate questions when following the participants with their lines of conversation. The risk of this was minimised by drafting some starting open-ended questions and discussing them with my supervisors.

Summary

Hermeneutic phenomenology as described by van Manen (2018) was chosen as the methodology for this study, along with in-depth interviews as the method. Thematic analysis was chosen as the approach to analyse the data. This study aimed to provide new knowledge regarding what it was like for community members who made personal decisions and took actions during a disaster, so that new perspectives could be revealed which would allow for a deeper understanding to be developed about what it was actually like for people during such events. It is important to understand this information so that the findings can contribute towards future planning to achieve more positive outcomes and lessen the negative psychological impact on those who felt pressured to make decisions and take actions in a disaster. Understanding the mental health impacts of decisions made during disasters is crucial for improving future responses and minimising harm.

The next four chapters focus on the data arising from the interviews which concentrate on exploring each participant's personal and unique lived experience of disaster, while also revealing the common themes that emerged.

CHAPTER FOUR -
THEME 1 - “MAKING SENSE OF MY WORLD”

Overview

Chapter Three outlined various potential methodologies before describing and justifying the chosen methodology for this study in greater detail. Hermeneutic phenomenology was deemed to be most appropriate for this study, along with in-depth interviews as the data collection method, and thematic analysis as the approach to the data analysis. It was important to capture both individual and shared lived experiences in this study so that an improved understanding of psychological responses to decision-making during disasters could be appreciated, and how these critical decisions affected the individuals involved. This knowledge can help to tailor psychological interventions for people who may face similar situations in future disasters.

This chapter focuses on the first theme that emerged from the data, using van Manen’s hermeneutic phenomenological approach as a framework to describe the participants’ experiences. An evocative method of writing has been selected to portray the participants’ experiences of the disaster so that the reader can feel a sense of closeness and understanding of what it may have been like for the participants involved. Chapters Five, Six, and Seven describe in detail the other three major themes which emerged from the gathered data.

The first theme has been called, *Making sense of my world*. Although this theme tended to appear throughout all the moments in time, it initially appeared within the first few moments of the participants seeing or hearing about the looming disaster. As the disaster evolved throughout the moments in time, the participants' perceptions shifted in response to the unfolding disaster. The initial confusion tended to be linked to the participants’ attempts to understand the scale and nature of the threat, but as the disaster progressed, the chaos became more tangible. As the disaster progressed, shifts occurred in both the participants' internal states of mind and their external responses.

In this chapter, this first theme is discussed primarily throughout the first two moments of time, as this is when the theme was most apparent and intense. This first theme comprised two sub-themes: *I did not feel safe anymore* and *I felt helpless.* Each sub-theme is discussed separately under each heading.

Firstly, it is useful to consider decision-making in general and how decision-making in a disaster is different to making everyday decisions. People, particularly adults, make countless decisions every day, many without realising they are actually making them because they are often made subconsciously; for example, selecting what to eat for breakfast or what to watch on television. Sahakian and Labuzetta (2013) suggest that people make up to 35,000 decisions a day, of which 226.7 of these are food-related choices. Sometimes people make decisions about what may be considered relatively simple choices; for example, buying red or green apples and therefore little thought about the decision is required. Other more complex choices may require higher level thinking or problem-solving skills, whereby a person may rely on a mix of conscious and subconscious processes to navigate the situation.

Hesse et al. (2015) describe the process a person may go through when making a more complex decision. This process is triggered when a person becomes aware of a discrepancy between a current state and a desired goal state and there is no quick or obvious solution. The person requires some level of thinking to make such decisions. Hesse et al. (2015) suggest a person then experiences a number of mental and behavioural processes, not necessarily in any particular sequential order, to reach a final conclusion. According to Hesse et al. (2015), the problem-solving process includes making a mental representation of the different parts of the problem to enable the formulation of steps and options that can help to transform the problem to the goal state. In the next stage of the problem-solving process, according to Hesse et al. (2015), the individual will develop a plan to enact the steps or options they formulated in the previous stage and will finally execute the plan and then monitor the new goal state and adjust as necessary.

People come across various problems in life and apply these problem-solving skills regularly, without necessarily understanding the thought process they go through. For example, if an individual has a problem in their workplace and was deciding what they could do to resolve the situation, they might use this problem-solving process to brainstorm and find a resolution to the problem. Decision-making, whether routine or not, is a daily part of life and most adults are accustomed to making decisions and are competently able to do so. In addition, most adults have had experience with more complex and consequential decisions, for example: purchasing a house, deciding whether to leave a relationship, or changing jobs. The difference between these types of problems and decisions and those that might need to be made during a disaster, is associated with the individual's previous

personal lived experience of a disaster and the extreme time pressures on them to make decisions during the disaster. In a disaster, the decision required can suddenly become acute, and therefore, well thought-out problem-solving techniques, as highlighted above, may not be possible due to the imminence and severity of the threat.

Factors that affect decision-making have been discussed in Chapters One and Two of this thesis, along with the potential repercussion of decisions that may affect a person's sense of ontological security. Ontological security was also discussed in Chapter Two and, as highlighted by Giddens (1991, p. 75) in his original works, ontological security is, "the extent to which individuals feel that their world and role in it is secure and predictable". Giddens suggests that a person feels safe and protected and their world makes sense when they have a routine, norms, beliefs, and practices. When a person's ontological security is disrupted or threatened, people can feel a myriad of emotions stemming from a perceived lack of order, meaning, and continuity. Campbell et al. (2020) suggest some of these unwanted emotions include uncertainty, anxiety, and insecurity. These strong emotions can lead to a person feeling overwhelmed and confused, which can potentially render them temporarily incapable of making decisions. The loss of the ontological security the participants felt is described in more detail in the next chapter.

These emotions became apparent and emerged as part of the first notable theme in this study, after analysing the interviews and identifying themes. Participants found they frequently questioned themselves and the situation they faced, in an attempt to make sense of their world and the situation they suddenly found themselves in.

Confusion: I did not feel safe anymore

Initially, in the *prelude* moment of time, the participants were trying to make sense of the situation in which they found themselves, in addition to their personal appraisal of 'who am I?' and 'can I cope with this disaster situation that is occurring around me and potentially going to impact me and what should I do about it?'. Many participants were feeling confused and conflicted, primarily in relation to emergency advice warnings and the physical signs of the emergency, which appeared to frequently contradict each other. For example, some of the participants were feeling bewildered and overwhelmed by a flurry of emergency advice warnings, as they believed there were too many warnings coming from too many different sources. In the heat of the moment, many participants felt confused, did not know what to believe, and did not feel safe. However, they knew they needed to make some decisions and take action about whether to evacuate or not, because they could see very real and

dangerous physical signs of an impending disaster. Participants also found ambiguities between what they were physically seeing as opposed to what they were being advised by the emergency advice warnings. This resulted in them feeling even more confused, and this conflicting information hampered their thinking and decision-making process. The confusion and conflicting emergency advice warnings resulted in the following participants disregarding the emergency advice warnings and making their own decisions to react to the situation:

Participant 8 who lives in a small rural community in South Australia could physically see the signs of a large and serious bushfire and was unsure what to do:

> *All of a sudden, the emergency advice warnings said it was too late to leave and we were told we had to shelter in place. It sounded very official, but we thought, nah, we're not going to listen to that. I had to make the call with my partner, whether to listen to that, and it all happened so quickly, we could see the all the thick broiling smoke, not far from us and we felt like we were on our own. We thought, we don't care what they are saying, we have to go. Participant 8.*

Shortly after Participant 8 had made the decision to evacuate with his wife, he lost communication on his phone because the nearby phone tower had burnt down and all phone and Internet communications had been lost, further eroding the accessibility and timeliness of official emergency advice warnings. This led to Participant 8 and his wife experiencing a range of emotions, which are discussed in more detail in the next chapter under the theme of *loss of ontological security.*

Participant 13, who lives in a small coastal town in the Mid-West region of Western Australia also found ambiguities between emergency advice warnings and the physical signs of an intensifying cyclone, and decided to ignore the emergency advice warnings:

> *The information that was coming was confusing, as far as what we thought would need to be packed away as we got different alerts and stuff all the way through the cyclone. We ended up packing a fair bit of stuff away. We tried preparing ourselves somewhat, not really thinking that the cyclone would hit us in such force. The emergency advice warnings weren't telling us to evacuate, they were just sort of the typical yellow alert, red alert, that sort of thing. However, at one point I decided to ignore the warnings to stay, as things were getting serious and I told my workman at my other house to evacuate, because that was one of the earlier houses on the farm and we didn't feel comfortable for them to be there. They decided to stay though, and we couldn't do much about it. Participant 13.*

The roof of the cottage that Participant 13 owned and where his employee was living, then started to lift off the house and the employee and his partner decided to run from the house in the middle of the cyclone, as the house had completely collapsed. They had to take shelter in the machinery shed until the cyclone had passed, and could not return to the cottage as it was uninhabitable.

While the other house in which his employees were residing was being severely impacted, Participant 13 and his family were sheltering in his family home in the *crisis* moment of time, which was also being impacted by the cyclone, causing he and his family to feel unsafe:

> *And we just sort of sat back and held on the wind. The wind started sort of coming in from the northeast and we had the generator going. We started it up before the cyclone hit, because we knew that we would lose power. And we had the lights on, all our outside lights on and we were sitting in our lounge room and we could just see tin and pieces of things starting to fly everywhere. The roof started lifting on our house; we've got a tiled roof and the tiles just lifted up and were hanging sideways. They didn't all actually peel off the house, but the rain was coming in sideways through the tiles and everything just started getting soaking wet inside on the north side of the house. We could just see tin and bits and pieces of things flying everywhere. I started feeling panicked, I started thinking this thing needs to let up or we are going to start losing the house. Participant 13.*

Participant 13 also experienced a range of emotions from that point on, which are discussed over the next few chapters of this thesis.

Participant 15, who lives in a small rural community in New South Wales had a unique situation whereby he disregarded the emergency advice warnings on two separate occasions. The first time was in the *prelude* moment of time where he could see the signs of the fire intensifying, with fires that had been burning for many days. As the fire increasingly worsened and was moving in a direction closer to their property, he started feeling confused about the conflicting emergency advice warnings that did not seem to be keeping pace with the changing circumstances and, as a result, he and his wife no longer felt safe:

> *And so locally people knew that there was a fire coming, but obviously no one knew exactly what the size of it was going to be. But we had this app and every day we checked the app and felt sort of reasonably comfortable that we could probably avoid it. Until one day the app showed the fire was about probably 10 kilometres from us. And then we get a call from our neighbour saying it's much closer than that. He said the fire is not very far from us and the fire will jump the creek and jump the road and he told us that we better get out. At that point,*

> *there was no really emergency advice, other than that there was a big fire front heading in our direction. And so, the app itself was not quite accurate. And the other thing too, is that in a situation like that, you rely on ABC radio, emergency broadcasting, that kind of thing, and emergency broadcasting, where it's very in nature, sort of covers a whole range of things. So, for instance, this fire front was a large fire front. We're talking about hundreds of thousands of hectares. So, you'll get one mention in a line information, if you know what I mean. So, for instance, they say, you are on Street Y and the fire front is heading your way. You'd get one mention in amongst 40, 50 seconds of information, and then while you're there, you have to make up the decision. Is that really us? Does that mean I had to get out? Is that what they're suggesting? There were no authorities coming to your door and knocking on a door and saying time to get out. It wasn't that at all. It was more listening to the radio, listening to neighbours looking at the app and deciding for yourself, things are bad, let's get the hell out*. *So, we got out. Participant 15*.

Therefore, at this early stage of Participant 15's experience of the disaster, he and his wife decided to go against the advice warnings and evacuate, basing their decision largely on their neighbour's advice and also because they felt unsafe after their observations of the physical signs of the fire intensifying. Once they had evacuated to a safe area and had stayed overnight at the evacuation centre, Participant 15 and his wife then went against emergency advice warnings a second time in the *crisis* moment and returned to their home before it was deemed safe. The reasons they returned home are discussed in more detail in the next chapter:

> *We had evacuated, and the fire front had passed, and we thought, this is good, we can now go back home. The official information was still to "get out, it's a live area, a live fire". However, the neighbours and I were confident that it would be okay, so we all went home and stayed home and decided not to evacuate again. Participant 15.*

Participant 12 who lives in a small rural community in South Australia was at home with the fires worsening around him and had been listening to the news on the radio and felt that the emergency advice warning broadcasts were not keeping abreast of the fast-changing local conditions that he could physically see. He felt that the radio news was delayed in its usefulness and appropriateness. He also had family members phoning him and telling him to evacuate. Participant 12 felt overwhelmed with too much information and made a decision in the *prelude* among the confusion that went against emergency advice warnings. He later regretted the decision he made.

Although the emergency advice warnings were building in their severity, they had not yet advised him to evacuate. However, he decided to evacuate from his home regardless:

> *I was keeping an eye on the radio and what was being broadcast on the media. But by then the local conditions had taken over, so what was being said on the radio, we were watching in real life. So, the emergency warnings were mounting, but I was tending to ignore them because you could see the fire coming. So, you knew you were in trouble. You're in the direct firing line and it's like, well what do I do here and now? There was this general nervousness of not knowing what was going to unfold and the one that still gripes me and what I had a lot of trouble with, is that I took a phone call from my sister about whatever time it was and she was listening to the broadcasts and what was happening in the area and she was screaming at me to get out of there. She was saying "go, go, don't stay" and I'm like, this is fine, and I don't like being told to go, by someone who is not there. And then I could see it got closer and I ended up leaving for a bit. I drove off and drove straight into the line of fire and I realised that was the wrong decision to leave, so I drove back to the fire near my house. Participant 12.*

Participant 9 who also lives in a small rural community in South Australia also did not know whether to trust the emergency advice warnings due to the chaos on the roads, the physical signs of the fire worsening, and the confusing nature of having too many emergency warnings, resulting in her panicking. Participant 9 went against the warnings and instead of 'wait and see' as per the advice warnings, she collected her daughter from home and headed straight towards the path of the fire:

> *My daughter rang me at work to tell me embers were landing on the roof of our house. I could see huge billowing clouds of smoke and planes darting around everywhere. People were driving faster than me on the expressway, and I had this urgency to get home. The emergency advice warnings were to wait and see, but it was incredibly dangerous on the roads, and I felt I shouldn't be on that road, and I had to make the call to stay on the fastest most dangerous road home, or to deviate to a safer route and whether to go home and pick up my daughter and leave, or to stay home. I picked up my daughter and left. Participant 9.*

In the *crisis,* Participant 9 felt conflicted and confused about the decision she made, and her experience is discussed in more detail in the next chapter, along with more explanation of the other factors that influenced her decision-making.

The following participants also found that the information available regarding the disaster and the emergency advice warnings was confusing and conflicting, hampering their ability

to make appropriate decisions in the *prelude* moment of the disaster. Although they did comply with the emergency warnings, they questioned whether they had made the right decision in doing so, and this led to feelings of regret, as discussed in Chapter Six:

> *I had just done a food pickup and my trailer was absolutely full of food for the animals and then I saw the fire directly in front of me, I saw the grey smoke and it was a good 15 minutes before it actually popped up on DFES website as a warning and I was a little concerned because of how I could see it and yet at the start, there were no warnings initially. Then, as my area headed into advice, which was really quick and there was suddenly too much advice, I started to get very concerned, I didn't know what to do, I felt very confused as I was not being told to evacuate. I was hearing the sirens, and I was feeling stressed and panicked, I knew there was a fire, but I didn't know much more than that and then I heard the most horrible cracking sound you've ever heard in your life, and I looked to the side of my house and there were flames and smoke billowing over. Participant 1.*

Participant 1, who lives in the foothill's region of Western Australia, then arrived home and found her phone started ringing with emergency advice warnings. This only created more confusion and frustration:

> *The emergency phone call was telling me to evacuate, but the call itself was too long, it had too much information in it. It was a bad thing, as I was drawn away several times from focusing on getting the car packed. It's like, what do I need, what do I need to pack, you know, grab this, grab that and I had to pull away too many times to answer the phone, it was too distracting. I didn't need that; it was confusing me. Participant 1.*

Participant 1 had a small hobby farm which she managed on her own. She had assessed her own capabilities to stay and defend her property against the fires that were surrounding her land, and had determined that she did not have adequate resources or skills to stay and defend. She made the decision to quickly gather up as many of her animals that she could fit in her car and trailer and decided to evacuate to somewhere safer. She left her property with only a handful of her animals leaving the rest at home, including many horses, goats, and pigs. She then drove away from her farm, wondering if she had made the right decision and desperately trying to make sense of the decision she had just made, and confused about whether she done the right thing by leaving.

Participant 11 who lives in the Perth Hills region reported that her involvement in a fire was one of the worst experiences of her life, and that she was terrified throughout the entire experience. She felt trapped in the Perth hills and felt solely responsible for the wellbeing of

her unwell aunty and their pets. Participant 11 was originally advised by the fire brigade that they did not need to evacuate:

> *When the fire hit, that was one of the worst times, I was stuck up in the hills with my aunt who was unwell. It was terrifying, because I thought if anything happens, we're stuck up here and we were literally on top of the hill and we could see the fire travelling across the top of the treetops. And the anxiety that was going through us, was just going through the roof. I was asking my neighbours what to do. The fire brigade knocked on the door and told us to stay put. We packed up the car anyway. We were trapped. I've never been that petrified in my life. Participant 11.*

A short while later, the wind and fire changed direction and their house suddenly came directly under threat along with their neighbours and several fire brigade members who were also on top of the hill with them, and they had to immediately leave the area. They were escorted down the hill under convoy behind the fire truck, which was hosing flames as they drove down the hill. Participant 11 experienced a range of emotions because of the advice she was given by the authorities and the ordeal she experienced after this advice. These emotions are discussed in more detail over the next few chapters.

Participant 3, who lives in a small coastal town in the Mid-West region of Western Australia complied with emergency advice warnings, which were to wait and prepare for the cyclone. However, she also felt that the advice warnings were confusing for her and other people in the town. She was aware that people had different levels of access to the emergency advice information and that timely information did not filter through to everybody, particularly vulnerable groups such as the elderly population. Because of the confusion around the information and the inconsistency of its availability, Participant 3 felt herself and many other people in the community had been too complacent and had not taken the warnings seriously enough with their decisions around preparedness:

> *There was a lot of information on social media. It was very confusing, the information. People weren't sure where to look, or what to believe and there are a lot of elderly people in the town that didn't have access to social media and internet. In general, there was a lot of confusion as to how serious it was going to be and people were just way too complacent, including myself, my biggest regret ended up being my complacency. Participant 3.*

In *the prelude* before the disaster had physically affected the participants, the cyclone was a very real threat and people had to decide what to do. They were trying to make sense of the situation and also weigh up their own sense of self and their capabilities and available

resources. In the situation that followed, the participants, for one reason or another, did not receive any emergency advice warnings and so there were other factors that affected their decision-making. Many participants in this study were not sure what to do at this early stage of the disaster and because of the lack of information, the words they used to describe the situation at this point included, ‘surreal’ and ‘unbelievably terrifying’. Several participants also made decisions at the time which they later regretted; this is discussed in more detail in Chapter Six.

Participant 5, who lives in a small coastal town in the south-west region of Western Australia, was on high alert because she could see fires all around the town from her windows, and because her home was located further out of town, away from the fires, the emergency advice warnings were not applicable to her location. Further complicating what she was seeing and hearing, was the fact that what actually happened to her was completely unexpected and not at all related to the fires, as she was struck by a tornado and there were no emergency advice warnings at all for the tornado:

> *We were on high alert that day, with the fire threat all around us. I was watching the fires burn and the emergency advice warnings, were all about the fires, telling us to watch and stay. The weather was very strange. It was extremely hot; it was over 40 degrees, and we had a number of fires had started and they were starting to burn towards the town, and we had heard that some houses had been lost. Our house is 15 kilometres from town itself and we were watching some of the fires burning on the ranges from, from our house. We could see the fires and we knew some of our friends and other townspeople had evacuated and were meeting up at the Groin. We were on high alert because of all these fires around us, we didn't know what was going to happen, it was surreal and eerie at the same time. I could tell the rain was about to come, and then all of a sudden, I could just see it, it was like a huge sheet coming across our paddock towards us, this wall of water and a huge thundering roar. Our roof started to lift and then I just froze, I didn’t know what to do. I started screaming my head off, I had to keep asking my husband, is it over, is it gone? Participant 5.*

Participant 5 and her husband were surprised and shocked as they found themselves in a situation where there were no warnings for what happened to them. The tornado that struck them was not predicted or foreseen and it happened so fast, there was no time for any warning messages to get through to them. Amidst the fires that were devastating the town, Participant 5 was struck by a tornado that tore their roof off. Although they were considering ignoring the emergency advice warnings about the fires to watch and stay, they did not

expect a tornado to hit and were feeling very confused and were then forced to make sense of a completely unexpected situation.

Participant 2 who also lives in a small coastal town in the south-west region of Western Australia, was also forced to make decisions in the heat of the moment which she was not prepared for and had no warning, feeling very confused and uninformed. She had to make sense of her world and appraise the situation alone, as she had just come back from a day out at the beach and was confused by what she was seeing and the lack of information that was forthcoming:

> *None of us had any warning, we just saw lightning strikes, it was a wildfire; It was a very bizarre day, It was hot, windy and very unpredictable weather. So, it just happened, I wasn't home, but I drove home and, on my way home I could see the fire. It was very small. It was on the other side of the main road from where my property was. At that time no one was very concerned because it was heading in another direction, it was heading towards an area which had had some burn-offs done not long ago. I went straight to my house and grabbed a few things which I thought were important. I was still not really thinking that it was that dangerous. I wasn't even thinking that I wouldn't be coming back to the house, that thought was not in my mind at all because, it just didn't seem to me as if it was really going to happen. But the wind changed, and the fire flared up and we had embers heading our way. Participant 2.*

Suddenly, Participant 2 found herself in very real danger. She had not received any emergency advice warnings, and therefore, could not rely on official advice to inform her decision-making. Participant 2 was in *the crisis* and had to decide whether to stay at home or evacuate, as she could clearly see the physical signs of the fire as it was heading directly for her home. Participant 2 quickly appraised the situation and concluded that she did not have the resources or capability to stay and defend her property, so instead she chose to evacuate. She decided to go to her friend's property which was out of the direct line of fire, as she felt she would be safer along with several other friends and neighbours who had also gathered there.

After some time had passed, Participant 2 found herself alone at her friend’s property. After a short time, her friends then left the house to either return to their own homes or to look around the neighbourhood. It was at that moment in time that Participant 2 also decided to leave her friend’s property and return to her own home to see what was happening. Her feelings of confusion suddenly turned to helplessness, as discussed in the next section entitled, *I felt helpless.*

Participant 4 found herself trying to make sense of her world in *the prelude* moment, after she had been holidaying in Hopetoun, a small coastal town located 590 kilometres southeast of Perth, Western Australia, for the weekend. She already had her bag packed and so did her near-adult son, as they had both been away from their home in the Perth Hills that weekend. Participant 4 did not receive any official emergency advice warnings advising her to evacuate because she had not been near her home. However, she did receive a phone call from her neighbour who let her know about the fire in the hills and suggested she return home as soon as possible to sort her house out.

Participant 4 collected her son from his friend's house where he had been staying the weekend and then both returned to their own home and packed up their pets and other personal belongings. While still at the house deciding what actions to take, Participant 4 then started taking constructive action on her property to protect it from the fires, without really knowing what to do:

> *I picked up my son from where he was staying at his friend's house, which usually takes one minute from my house, and it took us an hour. It was chaotic and it was like just this waiting game, like pathetically trying to water around the property, when there was no water, because it had been cut off somehow and we were relying on the bombers and it was, I think about four o'clock, when I looked over the hill and I saw the fire was coming over the hill and a helicopter tried to put that fire out and uh, unfortunately he missed it. It was then, I was on the phone to a friend, I said, I've gotta get the hell out of here and then there were these three scooters, coming up my driveway, I think they were community members, shouting get out of your house. Participant 4.*

Participant 4 described what happened next as a "denial" and a "rude awakening". She suddenly found herself in the second moment of time, *the crisis*, and as she was heading down her driveway with her son, her pets, and some personal belongings, she turned around and looked up her driveway and all she could see was her house engulfed in flames:

> *There was an explosion and then the flames started coming up. I had reached the bottom of the driveway, I looked up and there were 50 metre flames encroaching the house, because it was a cedar wood house, and my house was burning down, while I stood there and watched. Participant 4.*

To this day, Participant 4 could not explain what took place next, and although she still feels she has not quite made sense of her world from that time, she now feels at least she has found peace with it all:

> *I remember looking up at the flames and I felt like someone was comforting me. I can't remember if it was a human, a person, or an energy type thing, but something, or someone was comforting me, I don't know what it was, because my mind wasn't there, it was pretty horrific, there was no one there with me, touching me, so I can't really explain it, but I felt like someone was holding me while my house burnt down. Participant 4.*

Although Participant 4 could not describe or make sense of the feelings she had in that moment, she felt a calm warmth and comfort that she believes helped her accept that she had just stood in her driveway and watched her house burn to the ground while feeling helpless at the same time. This feeling of helplessness is discussed more in the next section.

Participant 4 then drove off to her parent's house with her son and the pets, knowing that her house had been burnt to the ground, but not knowing what lay ahead for them from there onwards. She described her situation as:

> *I had walked out of bedlam, I knew for the sake of my son, who was being very courageous, that I just had to get on with things. To find some sanity. I was trying to sort my life out from scratch, I didn't know what I was going to do, it was like everything was a clean slate. The heartache, the grief, it was the loss of everything. You know, even though it wasn't a person, it was still a loss. It was the loss of my whole life. Participant 4.*

Participant 4 then moved to an evacuation centre where she resided with many other people who had been evacuated from their homes because of the fires. She was grateful because she had certainty and knew she had lost her home, whereas the majority of the other people in the evacuation centre did not know if they had lost their homes or not at that point. She had that certainty, as opposed to the other people at the evacuation centre, which she described as:

> *Even though I knew I had lost my home, there were people back at the centre and not a lot of them knew for sure if they had lost their home because they were told to evacuate. And so, there was this part, some people knew they had lost their house, which I knew I had and then the others were waiting, days of waiting and not knowing and it was quite horrific. So, in a way, I was glad I know, so I could start forward thinking. Participant 4.*

While Participant 4 was grateful for having some certainty in knowing that her home had been destroyed, she still found herself lost, confused, and unsure what to do next, while still trying to make sense of her situation and her world.

Participant 6 who lives on a farm in the Western Australia wheatbelt region had experienced numerous fires in her life and considered herself to be reasonably knowledgeable about prevention and planning and the appropriate actions to take in the midst of a fire situation. However, this was not the case in the most recent fire she had been involved in, and because it happened so quickly and was so localised in her small community, there were no emergency advice warnings given. Participant 6 felt very confused by her reactions in the *crisis* moment, and it appeared that her body's flight, fight, freeze response kicked in and, in her case, she froze. She reported that she felt too overwhelmed to think properly and clearly:

> *There was a fire in my community and on my farm last year and I went to pieces. I couldn't even focus on trying to put the fire out. It was pretty hectic. I couldn't think, I literally froze, once I saw the fire, my anxiety levels just went through the roof and I couldn't think, I couldn't even think what to do, so I ended up going down the end of my driveway and just sitting there because I couldn't function. Participant 6.*

Participant 6's experience is discussed further in the next section, as her feelings of being overwhelmed and confused then lead to her also feeling helpless.

Participant 10 who lives in a small rural community in South Australia had plenty of notice that there was a large fire in the area, as it had been burning for about 2 or 3 weeks and was slowly making its way in the direction of his house. On this particular day, despite the advance notice he received, he suddenly started to take the situation more seriously and felt confused about what actions to take to make more sense of his world and did not feel safe or confident in his decisions:

> *All of a sudden, the helicopters were above our house, and these were the helicopters with the big bags of water underneath, which kind of expediated the trip out. As we were getting the kids ready, I started thinking okay, well which way will we head? Where do we want to go? There was an announcement on local radio saying that the roads were closed, and we had essentially 15 minutes to get out of town if that's what we're doing, or we would have to get to the oval as the safe zone. At that point, knowing that the town was actually going to be locked down, we packed everything in the car and just gunned it, not really knowing what to expect, thinking we might come back later that day. Participant 10.*

Participant 10 then found himself locked out of his town and away from his house for three days, unable to check on the welfare of his chickens and whether his home was still standing. When he finally made it home a few days later, there was still a significant fire around his house, so he packed up the animals he could and left again, still unable to make

proper sense of his world because he did not know when he could come back, whether the remainder of his animals would survive, and how long he would have to stay away from his home the second time around.

As can be seen from these participants' accounts of their situations and their associated feelings, there was much chaos and confusion once they had received emergency advice warnings or had seen the physical signs of the impending disaster, which appeared to them to be worsening. This also led to many people feeling helpless and this is described in the next section.

I felt helpless

Many people found they made decisions and took actions in the lead-up to, or during, the disaster in *the prelude* moment of time that rendered them feeling helpless during *the crisis* moment in time and, in hindsight, wondering why they had made particular decisions. For example:

> *We were driving down the hill following the fire engine, I was just in the back hanging on for life, there was thick smoke everywhere, we could not breathe, we could not see, we didn't care where we were going, we didn't know where we were going, we just wanted to get out of there. We felt trapped, with no way of getting out. We were helpless. Participant 11.*

Participant 11 was originally advised by the fire brigade that they did not need to evacuate. A short while later, the wind and fire changed direction and their house suddenly came under direct threat, along with their neighbours and some fire brigade members trapped on top of the hill. They were escorted down the hill under convoy behind the fire truck, with emergency services personnel hosing the flames as they drove down the hill. Participant 11 described her experience as "petrifying" and that she felt trapped. She felt she had lost trust in the authorities and found it difficult to make sense of her situation and to know what was best to do, as she also had a frail relative with her that she felt responsible for and her pet dogs, which were also in the back of the car. Participant 11 felt so overwhelmed with her situation that she felt helpless and did not know what to do or who to trust for advice.

Participant 15 also felt helpless after a decision he made in the lead-up to, and during, a fire surrounding his house. Participant 15, his wife, and many of their neighbours returned to their homes after the initial fire front had passed through the area. Despite the emergency warnings advising them not to return home, they decided to go home and remain there as they decided there would be a 'safety in numbers' situation with their neighbours also at

home, and they felt more confident in all remaining in their homes near each other, particularly as they felt a lot of the fuel load had diminished:

> *We had evacuated, and the fire front had passed, and we thought, this is good, we can now go back home. The official information was still to "get out, it's a live area, a live fire". However, the neighbours and I were confident that it would be okay, so we all went home and stayed home and decided not to evacuate again. Participant 15.*

The winds then changed direction, which resulted in the fire being pushed back towards Participant 15's house. The fire then struck his property on many fronts. He and his wife and many of their neighbours found themselves trying to fight the fires on several fronts for many days after they had returned home, questioning why they had made the decision to return home and go against the emergency advice warnings. Participant 15 had to keep desperately looking for resources on his property to fight the fires with, such as the garden hose and wet cloths, and found himself continuously checking the weather and news and seeking information on the current fire status so that he could try to keep the fires contained. He was desperately trying to make sense of the situation he had put himself and his wife in, and felt helpless:

> *By the time the wind had changed, and the smoke had come across to where we were, things have actually gotten worse from the previous couple of days. It was mayhem. We decided, whoa, what can we do at this point? The roads are closed so we cannot get out at this point. We have nowhere to go. It was indescribable. It was terrifying. I had completely miscalculated the size of it. We felt helpless and terrified. Participant 15.*

Participant 7 also found himself trying to make sense of his world in *the crisis* moment, because both his home and his business were under very real threat from the fires. He was forced to make a decision on whether to try to save his business or his house, as he knew he did not have the time or resources available to save both:

> *Because of the conditions that day, we lost power, we lost the Internet, and we couldn't go in and out of the town because we were surrounded by fire. So, all of the decision-making tools were removed, which caused nothing short of complete chaos amongst people who weren't used to dealing with chaos and a degraded information environment. I thought I had a good plan. I thought my house was completely defendable and I knew my house was prepared to take a burn-over, but I guess it wasn't, because I ended up losing my house as I was fighting the fire at work simultaneously. I had the fire hit my house and the business, so I had to stay at the business. Participant 7.*

Participant 7 chose to save the business because it was a fuel depot. He had a couple of his workers helping to save the business, and because of the high risk of the nature of the business to the rest of the town, he “sacrificed his house”. When he was weighing up his decision and trying to make sense of his world, he felt helpless as he watched his house burn down:

> *I watched the fire burn towards my house, and I remember making a conscious decision as I stood there and I thought, I have two simultaneous dilemmas and I can only deal with one of them and I remember thinking what is most important here. I thought well, clearly work is, because if all this fuel goes up, half a million litres, we’re in big trouble. So, I am going to dig in here and defend this and I could see the fire flanking a ridge line around towards my house, which is only two kilometres from work, and I thought its gonna go and then I watched my house get completely enveloped and it was quite hard to describe how I felt, helpless, watching my house. I’d sort of, to an extent immediately come to terms with the fact the house was gone. I felt bad afterwards, but not at that moment because I thought the priority here, is to keep a clear head and try to compartmentalise that out of what I am experiencing right now because I need to a) survive and b) keep the fuel depot safe. Participant 7.*

After he watched his house burn down, Participant 7 continued to feel somewhat helpless and guilty; guilt is discussed in more detail in the next chapter:

> *So, at the time, it took a hell of a lot of grit, I just lost 350 years of family history. I’ve lost the house I spent my life building; my kids have no clothes. Participant 7.*

Returning to Participant 2’s experience where she was feeling confused because she had left her friend’s property to return home alone to check on her own house, she was unable to get to her house because of the fire and she then felt helpless and detached:

> *I was actually on the road; I was up on the hill, and I could see my house. It was a very surreal experience. Yeah, it just didn’t feel real. I think I went into detached mode. The firefighters were all going in different directions, because the fire was all over the place and you know, they were trying to protect other houses, but it came very quickly to where my place was. It was too quick for anyone to go down and do anything about it. I just watched my house burn to the ground. Participant 2.*

It was at this point when Participant 2 was watching her house burn to the ground, that she desperately tried to make sense of her world and make sense of what had just happened right before her own eyes, and then she had to try to work out what she would do next, feeling confused and helpless.

Participant 4 also felt helpless during the fire and after the fire had passed when she realised her house had burnt down in the *aftermath* moment:

> *When I saw the fire and the ashes, I felt like I surrendered it, the house. I felt helpless and in disbelief. You didn't actually know what was going on. I felt helpless, I didn't really know where to begin to move forward after that. Participant 4.*

As mentioned under the previous heading, Participant 1 was feeling confused about the differences between the emergency advice warnings and the physical signs of the worsening fire, and decided to pack up the animals that she could physically transport in her car and evacuate, feeling very emotional:

> *I had too many emotions. I felt washed out, you know, there's guilt, there's fear and there's shock. All those emotions at once. After I left, every day I tried to come back to check on my animals. I'd drag a trailer full of food for the animals in the hope to be able to feed these animals and every single time I got turned around at the roadblock and had to go back. Participant 1.*

Participant 1 used words such as "angry", "guilty", "frustrated", and "helpless" to describe how she felt about her situation and not knowing if her larger animals were safe, how to get back to them, and whether her house was safe. Some of these emotions are discussed in more detail in the next chapter.

Participant 3 and her community also felt helpless. However, Participant's 3 feelings of helplessness became apparent in the *aftermath*, that is, after the cyclone had struck. She was working the next day and left her home and children to help members of the community:

> *Going back to work the next day after the cyclone was absolutely devastating. The devastation, nobody expected it. There were people everywhere, they were just broken. There were men collapsing in tears in the streets. It was absolutely heartbreaking, very, very sad. People were sitting in the dark in their homes. They had no food, no power. The feeling was helplessness. I felt helpless. People felt helpless. Before that we were a close community. Participant 3.*

Following on from the previous section with Participant 6's story regarding her experience of the fire, she had a 'freeze' response when she realised there was a fire on her farm. In addition to feeling confused and panicked, she also felt helpless:

> *I felt like there was nothing I could do. I felt panicked and that I couldn't help. I felt helpless and I don't know how else to describe it. The anxiety and the panic sets in and you can't do anything, and you just sit there and you feel absolutely useless. All I could do was go and sit down the end of my driveway away from the fire. Participant 6.*

Participant 6 felt even more confused and alarmed at her panicked response to the fire, as she had wrongly assumed that with her previous experience of being involved in several fires, that she would have managed the situation better. This type of response is discussed in more detail in the *Discussion* chapter of this study.

Participant 5 also found that she had a 'freeze' response in the *crisis* moment of a disaster. As previously mentioned, she was worried about the fires surrounding her town and was expecting to have to evacuate because of the worsening situation. Instead, a tornado struck her house completely unexpectedly and without warning, and she found her initial response was to "scream her head off". Participant 5 also described her situation as helpless:

> *My roof was torn off. My stuff had blown everywhere. My furniture was ruined. It was water damaged. And if you can imagine when the roof comes down and all that dirt and mouse droppings, it's just horrible. When I saw the destruction, I was devastated. I was crying, it was like losing a family member, you know, you go into grief. I felt helpless, I didn't know what to do, who to call, who can help us, because everyone was out fighting the fires. Participant 5.*

Participant 5 was in the *crisis* moment and felt completely bewildered and helpless, not knowing who to call, or where to start to move forward as she stood in her house without a roof and crying.

Participant 9 felt helpless in both *the prelude* and *crisis* moments of time, because of the chaos and confusion she experienced. She felt particularly anxious because her multiple phones kept ringing with emergency advice warnings, and she felt there was too much information and too many warnings that resulted in her experiencing a 'freeze' response to the situation. Participant 9 then made a decision which led to other feelings, that are discussed in the next two chapters. She felt that her situation and her decision led to a feeling of helplessness:

> *You were so vulnerable to the elements and so vulnerable to this wind pushing this fire over and you were actually helpless, in that you didn't quite know what to do for the best and you didn't know what was the best decision to make. You were vulnerable to all the elements of*

> *those crazy drivers on the road, to the smoke, to the visibility and to the potential flames coming at you. You're quite helpless. You couldn't control any of it. Participant 9.*

Finally, Participant 13 also felt helpless as he made the decision to remain in his home with his family during a cyclone. After he had committed to the decision to stay and the cyclone physically struck, was when his feelings of helplessness set in:

> *You are helpless because you cannot do anything, you're locked in. In the moment of it happening, I didn't feel helpless in that something bad is going to happen to me, but I felt helpless in the state I was in, because I couldn't just walk outside and turn it off. No, it's happening, it's real. It's serious. It does get very serious in the moment, and you feel very helpless. Participant 13.*

In conclusion, this chapter has discussed the theme of *chaos and confusion; trying to make sense of my world* with the two sub-themes of *confusion; I did not feel safe anymore* and *I felt helpless*, as these were the main states of mind that became most prevalent for the participants typically in the first two moments of time, the *prelude* and the *crisis*. This theme and the associated moments are revisited in Chapter Eight linking this to how it applies to the current literature and future recommendations. The findings from this study and how the participants felt in the lead-up to, and during, the disaster is important so that knowledge gained from this study can inform preparedness efforts, training, policies, response protocols, and post-disaster interventions, ultimately helping to mitigate the negative psychological effects of disasters on affected populations.

The next three chapters focus on the three other most prevalent themes arising from the second, third, and fourth moments of time, shortly after the participants had either made decisions and started taking actions after they had either received emergency advice warnings or had seen physical signs of the disaster. At this point, the participants knew they needed to take action to remain safe, and the following chapters describe these decisions and associated actions, and their psychological impacts.

CHAPTER FIVE-
THEME 2 – “MAKING SENSE OF MY DECISIONS”

As discussed in the previous chapter, many of the participants in this study felt confused and helpless in the lead-up to, and during, the disaster. It is important to examine these thoughts and feelings during the early stages of a disaster to better understand the factors that may have influenced the decisions people then made. The exploration of these thoughts and feelings allows for a deeper and more enriched understanding of human behaviour under extreme pressure, and builds a more complete picture of how people experience and process disasters and what might have led them to the subsequent actions they took. Understanding these processes is important so that future planning for preparedness efforts, training, policies, response protocols, and post-disaster interventions can ultimately help to mitigate the negative psychological effects of disasters on affected populations.

Following on from the second theme of *Making sense of my world,* another common theme emerged, which was closely linked to the first one. This theme eventuated from the direct consequences of the decisions participants had made and the actions they had taken mostly in the lead-up to, and during, the disaster. This theme has been named, *making sense of my decisions,* because many of the participants were confused and surprised by the decisions they made during the disaster. This theme has two distinct sub-themes which relate to the consequences of the decisions they made. These are: *what was I thinking* and *loss of ontological security*.

Ontological security was discussed in Chapter Two of this study, and Giddens (1991) describes it as the sense of order and continuity a person feels with regard to their individual experience. In Chapters Two and Four of this study, the importance of ontological security was highlighted, in that it effectively provides a ‘protective cocoon’ and a ‘firewall against chaos’. When a person’s routine or ‘expected’ life is interrupted or threatened, they may feel a sense of insecurity, uncertainty, and anxiety, potentially rendering them temporarily incapable of making decisions.

Before exploring the decisions participants made in more detail, it is useful to recap on several factors that can affect decision-making, as described in Chapters One and Two of this study. Seeger and Sellnow (2016) revealed that when a person finds themselves confronted and in the face of a crisis, they can experience a momentary loss or lapse of reason, almost like a type of paralysis, and may be temporarily unable to make a decision

because of their inability to make sense of what is happening. Typically, in a non-crisis situation, people have stable beliefs about a range of things, such as safety, security, competence, and a sense of ontological security. In a crisis situation, these things can be disrupted, and consequently, people are left feeling surprised, threatened, and rushed, because an unexpected rapid response is required to the threat.

There is also a psychological phenomenon whereby the presence of too much information results in slower decision-making, as discussed in the earlier chapters of this thesis and highlighted by the WHO (2022) who referred to the phenomenon as an 'Infodemic'. There is often so much information about the current state of a disaster being broadcast (during disasters), that it can become confusing and overwhelming. This information overload is further compounded by the multitude of factors a person is processing in real-time as they take in the scene, including the physical signs of the disaster and their own personal circumstances in their immediate environment. This can lead to further confusion and the individual feeling even more overwhelmed and facing difficulty in processing the information all at once. It is often unfeasible for humans to effectively find all the information they need, organise it, make sense of it, and to act on it. Information overload can result in a slower reaction, as people tend to wait to see what the next piece of information will be, rather than acting immediately (Hiltz & Plotnick, 2013).

Many participants made decisions and took subsequent actions based on these decisions in the lead-up to, and during, a disaster, that in the *crisis* moment and on further reflection in the *aftermath* moment, left them questioning why they made these decisions, which they often struggled to come to terms with. The emotions linked to these decisions are discussed in more detail in the next chapter. This chapter focuses more on the decision itself and the impact of the decision in terms of the participants' ontological security.

What was I thinking?

Participant 15 found himself questioning his decision when he returned home after a fire had initially passed through, despite the fact that emergency advice warnings informed residents that it was still a live fire zone and advised people not to return. Shortly after he arrived back home, Participant 15 realised the winds had changed and he had put himself and his wife in danger and were in the direct trajectory of the fire:

> *And then of course from the south, it turns around, and the fire comes up the south. And then I realised, hang on a minute, this is nasty stuff because by now there are trees on the south*

of our property that are old and rather large, and they're all burning like Roman candles. And that's when we really realised that this is dangerous stuff. We are in the middle of something that we can't really control. The whole situation was indescribable. Absolutely indescribable. The winds had changed, and you could hear the fire. I think for me, it's the sound of it, the bush burning. It's the falling trees, heavy falling 30 metre trees, falling over. It's remarkable. Somehow, we managed to survive. I should never have put myself and my wife in that position. It was foolish, I would not do that again. Participant 15.

When Participant 15 was asked what some of the factors were that lead to him making the decision to return home despite the emergency warnings advising him not to, he mentioned several reasons. Firstly, they were not fully prepared when they initially evacuated and did not have a change of clothes or anything warm to put on, and therefore, wanted to return home as soon as possible to have better access to their personal belongings. Secondly, he genuinely believed the fire front had passed and the imminent danger had subsided, and should conditions deteriorate again, he believed that he and his neighbours were confident enough to be able to manage the conditions. Once he was in the midst of the fire after the wind direction had changed, he questioned his decision to return home and this led to other feelings of regret and guilt, which are discussed in the next chapter.

As mentioned in the first two chapters, there are many factors that affect decision-making in a disaster. DeLamater et al. (2018) suggest that if a person does not see the risk, or their judgement of the risk is clouded by past experience or the presence of other people, then taking action to avoid the risk may be inhibited. Gantt and Gantt (2012) suggested that when there are other people in an area, the likelihood that someone will notice or take action as a result of an emergency advice warning decreases, typically because when there are other people close by, individuals do not feel as much pressure to take action. Participant 15 reported that his decision to return home was influenced by the fact that his neighbours had also decided they felt confident enough to return home, and he did not understand the intensity and severity of the fire and the immediate risk, because he had assumed the fire had passed through already and any immediate risk had passed.

As mentioned in Chapter Four, Participant 12 made a decision in the heat of the moment that he did not think through and left his property, driving directly into the path of the fire. To this day, he could not answer the question of, 'why did I do that?', when he reflected on the decision he made during the disaster:

> *Afterwards when I thought about the leaving, why did I leave? That still haunts ne. There was more danger on the road with the falling trees and there was nothing but burning along the road. There was no plan. I just panicked and thought I have got to get out of here, based on what my sister was telling me, not having the correct information, I guess. And that one still messes with me. Participant 12.*

Participant 12 has completed several counselling sessions to help him come to terms with the strong emotions he experienced about the decision he made to leave his property in the *crisis* moment. He realised approximately 6 to 8 months after the fire that he was not coping well with the feelings that resulted from his experience in the fire:

> *I think because I hadn't talked about my feelings with anyone, I was letting everything bottle up, I felt like I wasn't quite dealing with any of it. I couldn't make sense of it in my head why I left, what caused me to do that. I am generally a calm person and there I found myself panicking and not really coping in that situation. Participant 12.*

Seeger and Sellnow (2016) provide insight into why people may act in a crisis in ways that surprises them, when they reflect back on their decisions and actions. As discussed earlier in Chapters One and Two, Seeger and Sellnow (2016) suggested that when a person finds themselves confronted and in the face of a crisis, they can experience a momentary loss or lapse of reason, almost like a type of paralysis and may be temporarily unable to make a decision. Seeger and Sellnow (2016) suggest this momentary lapse of reason typically occurs because of a person's inability to make sense of what is happening. From Participant 12's personal account of what happened, it would appear this is what may have happened to his decision-making skills during the disaster.

Similarly, Participant 9 found she made a decision during the disaster that she later questioned in the *aftermath* and *long-haul* moments. As mentioned in Chapter Four, Participant 9 felt confused and helpless, and this may have impacted her decision-making skills. She explains:

> *One thing that I didn't really need at the time was that the South Australian government had organised for the landlines to be rung, to warn people about the impending danger*. *So, I had the phone ringing and I thought, what's that ringing for, that doesn't normally ring and there was a recorded message, 'prepare to evacuate' and I thought well I am doing that already. So, I hung up and then my mobile phone started ringing and then the mobile phone message was going on and then the landline was ringing again and again and it was ridiculously too much and all it did was heighten my anxiety. I felt confused and then I made a decision to*

> *take my daughter to her father's house and gather up the puppies to rescue them. Her father's house was closer to the fire front than mine, so I am not sure why I made the decision to go and rescue them, I don't know what I was doing, and I can only contribute it to all the phones ringing. It was dangerous being on the road, it was chaos, just chaos. Yet I felt I had to be on the road to save these puppies, I don't know why I felt they were more important, but that was my only focus, and the wind was blowing and it was getting hotter and hotter. The smoke was intense. Now in hindsight, I realised I made a wrong decision. I think that really, I should have just left the puppies and I should have just looked after my daughter, got ourselves ready to evacuate and prepared the car to go. I still to this day, don't know why I went into puppy preservation mode. Participant 9.*

Again, as per Seeger and Sellnow's (2016) theory, it would seem that Participant 9 felt confronted and confused in the face of the crisis and experienced a momentary loss or lapse of reason and made a decision she later questioned because of an inability to make sense of what was happening.

Another example of a type of paralysis, or momentary lapse of reason with decision-making ability in a disaster was experienced by Participant 8 in the *aftermath* moment of time. He had returned to his house just after the fire had passed through to examine the damage:

> *The plastic insulators on the top of the power poles melted and the cables came off. I was leaning over one and I was about to pick up the live power cable. It wasn't light, but that's how dumb you get in those situations. I was going to push it, you know, pick it up and put it out of the way. That's how shell shocked you are. It's pretty traumatic, there's a whole bunch of stuff you learn about yourself that you didn't realise before. Lucky my cousin was there to pull me back. Participant 8.*

As described in the previous chapter, Participant 6 felt very confused and helpless from her experience in the fire, and she was surprised by her reaction, particularly because she had prior lived experienced of fires. Her narrative was reported in Chapter Four using phrases such as: "I went to pieces, I couldn't even focus on trying to put the fire out, I couldn't think, I literally froze", to describe her reactions to the fire. Participant 6 ended up going to the end of her driveway and just sitting there, because she could not function or think of what to do next. Again, as described by Seeger and Sellnow (2016), this is another example of a person finding themselves confronted and in the face of a crisis, and experiencing a momentary loss or lapse of reason, almost like a type of paralysis, who was temporarily unable to make a decision because of an inability to make sense of what was happening.

Finally, Participant 4's experience of asking herself "what was I thinking" occurred in slightly different circumstances, in the *crisis* and *aftermath* moments, and her decisions were not made as a result of a type of paralysis or an inability to make a decision, as her situation happened so quickly, she did not have time to make decisions. Her questioning "what was I thinking" came as a result of her standing in her driveway watching her house burn. While she questioned herself as to why she just stood there and watched her house burn. She also knew that she really had no choice as there was nothing she could do about it; however, to this day, she could not explain what happened next:

> *I remember looking up at the flames and I felt like someone was comforting me. I can't remember if it was a human, a person, or an energy type thing, but something, or someone was comforting me, I don't know what it was, because my mind wasn't there, it was pretty horrific, there was no one there with me, touching me, so I can't really explain it, but I felt like someone was holding me while my house burnt down. Participant 4.*

Participant 4 could not understand what she felt or what she was thinking; however, she believed it was her spirituality and faith that affected her decision-making to stay and watch her house burn, as she felt that comfort as described, and felt at peace to stay and watch. It was only in hindsight, and in the *long haul* moment of time, that she has really questioned what happened that day and why she just stood there and watched.

Loss of ontological security

Whether it was through the decisions a person made and the actions they took in the *prelude* or *crisis* moments of time, or as a result of the unfolding situation they found themselves in together with their feelings of confusion, helplessness, and/or uncertainty, most of the participants found they experienced a loss ontological security. This loss of ontological security occurred differently throughout the moments of time for the participants, as described below.

Participant 1 felt confused with what to pack when she had to evacuate, and unsure if she had made the right decision to evacuate because she had to leave so many of her animals behind. She was uncertain about what would happen after she left her property, or when she could return home:

> *I was horrified. I'm going to lose everything I own. I don't have time to evacuate anything else. There were so many gaps in the information coming that it was so frustrating. The not*

knowing, it was just horrible. After I left, I believed I had lost my whole house and everything. I was in shock and grief. Participant 1.

Participant 2 felt that she had lost her ontological security when she watched her house burn to the ground. She described her experience as surreal and that she felt detached and feeling strong emotions:

I watched my house burn to the ground. It was a very surreal experience. It just didn't feel real. I went into a detached mode. Firefighters were going in all directions, because the fire was all over the place and they were trying to protect other houses, but it came very quickly to my place. It was too quick for anyone to go down and do anything about it. So, I just watched from a distance, then the fire moved towards the ocean. So, it was a very unusual experience. Afterwards my confidence just went down. I used to feel very confident about everything, but every now and then, I just think, oh it's all too much, it's too overwhelming and I think I just can't do this, I can't rebuild my life, my confidence goes down and it's just all too much. I contacted my insurance the day after my house burnt down and I was just about to break down. Participant 2.

In the *aftermath* and *long haul* moments of time, Participant 2 continued to struggle to find a sense of ontological security, and on many occasions felt overwhelmed with having to rebuild her life. She was living in a caravan on her property while trying to rebuild, but with winter and the rains coming, she was left questioning herself and whether she had made the right decision to live on the property at the same time as rebuilding. She felt she needed to re-establish a sense of ontological security to be able to effectively move forward with her life:

A lot of my time is taken up on planning, organising, you know, project management type of stuff. It's just been one job after another. Trying to stay positive it's a lot for me to handle, everything seems so messy and uncomfortable. And when it rains, there's a worry of sort of getting from spot to another, from the caravan to the shed, everything like that and I don't know what I'll do in winter, I am not keen on being in this situation, I can't see it working out very well. *Participant 2.*

Participant 3's loss of ontological security appeared in the *crisis* moment of time when she was sheltering in her home from the cyclone with her children:

The cyclone hit. It was pretty bad. The wind was howling, I never expected anything like it. We sustained a fair bit of damage. There was cracking all over my house and everything outside blew away. My neighbours shed ended up in my garden and their roof got blown off.

> *It was actually frightening, terrifying, there was stuff going all over the place, everything was shaking. My youngest child was hiding in the linen closet with the cats, she was very traumatised. The rest of us were on mattresses in the front room and I had a mattress against the wall. We lost phone and Internet reception, so we had no idea what was going on. Participant 3.*

As mentioned in the previous chapters, Participant 4 ended up standing in her driveway watching her house burn down. Afterwards, when the reality of her situation settled in and the *crisis* moment of time had settled, she realised the gravity of her loss of ontological security:

> *I realised I had to sort my life from scratch. I didn't know what was going to go on. It was just like everything was a clean slate. The heartache, there was a lot of grief and heartache, because it was the loss of everything, even though you know it wasn't a person, it was still a loss. It was actually the loss of my whole life. Because, whenever you leave school or home when you're a young person, you take your life with you wherever you go, you know, your boxes. So, it was all my teenage years, all my baby years, all wiped out. I didn't really have anything. Participant 4.*

Participant 5 found her loss of ontological security occurred shortly after her roof had blown off in a tornado:

> *My husband and I were both in shock; we didn't really know what to do. I couldn't believe what I was looking at to be honest. We were completely up in the air. We have to start all over again with our belongings. When we saw our roof rolling back over the top of us. It was so scary, and then it was shock after that, especially when we saw it on the front road. Participant 5.*

Participant 7 saved his fuel depot business, and in doing so, watched his house burn as he could not save both. He lost his sense of ontological security in that moment, because of the loss of the plans he had:

> *I haven't come to terms with the loss of the plan I had before the fire. I had a plan that involved living in our home, with our children and having a dog. We had all these ideas, like a dog for the kids to be able to play with on the big property, it would have all been good and maybe I'm idealising it a bit, but that plan all got evaporated when the house burnt down. Now we are living in this tiny rental property and all these other things have smashed us around financially, we were underinsured by half and that's my fault. Participant 7.*

Participant 7 being underinsured will be further discussed in the next chapter under the theme of *Guilt.* Participant 7 was also still experiencing a loss of ontological security in the *long haul* moment of time because he was underinsured and because of the property market being so expensive and in short supply, he felt trapped about how to move forward with his future:

> *We can't rebuild, there's nothing to buy on the market, we don't want to move, so we feel really trapped, with no real plan for the future and that's a real problem, we don't know what the future holds. Participant 7.*

Participant 8 had decided to evacuate, despite the emergency advice warnings advising him he did not yet have to. He and his wife decided to stay with their parents who were in a safe zone. On the way there, they received a phone call from their neighbours, and it was at that time that their ontological security diminished:

> *We were driving to the parents, and we got a phone call, which we were not expecting, and it was our neighbour, and he said, it was basically such a short sentence, it was something along the lines of, look, I'm really sorry, but we can't save it and then he sent though some photos to make it real. My wife was very upset and started phoning the insurance right away and told them our house is gone. We are screwed. We were both very shell shocked obviously. Participant 8.*

Participant 8 later returned to his home to inspect the extent of the damage. When he saw it in person, his sense of ontological security worsened:

> *You don't realise the depth of your emotions until you see it. How shell shocked you are until you see the damage. It was surreal. Totally unbelievable. Literally, you could not get your head around it. You're just sort of standing there, going what the freak. I can't believe this. Participant 8.*

Similar to Participant 7's situation in the *long haul* moment, Participant 8 was struggling to find a sense of security to be able to move forward, and felt very confused:

> *Two years later we were still in limbo, and we were getting anxious. We couldn't move on. We knew shortly after the fire that we couldn't rebuild. We kind of felt that well, you know, the nearest analogy would be imagine, a grave site and then building on top of that grave site. I don't want to be around that anymore. So, I knew I couldn't rebuild. Participant 8.*

Participant 10 found his loss of ontological security occurred throughout several moments of time; the first was in the *crisis* and the second was in the *aftermath* moment of time, which occurred just before Christmas. In the *crisis* moment, Participant 10 had evacuated his home with his family to stay with other family members a long way from the fire. However, Participant 10 was unsure what has happening back at home:

> *So, the reports from ABC News Radio were that there were still barricades and that people were not allowed to travel. And it was at that point where I decided regardless of whether I was supposed to be going in or out at all, I was going to make at least an attempt to come back to find out, because I'd also not been able to get in contact with anybody to find out what the status of our house was or our animals or anything else. And so, I decided to go back. My partner and I had talked about it and decided that was time to go back and actually check on the property and the animals and find out. I went alone because I just felt that it was still a significant risk, and it certainly was to be coming into town. And so, if there was going to be a problem, my preference would've been that only one of us (not my wife), was being exposed to a problem, so that if anything went wrong, there would be at least one of the parents there for the kids. Even if it meant, I end up in a hospital or something. At least one of us was there for the kids through that. I mean, it was a balance, I didn't want to put myself in harm's way, but at the same time I had concerns at least about the animals and I wanted to know if the house was there. I needed to tell my family that we no longer had a home, basically if that was the case. Participant 10.*

In the *aftermath* moment, Participant 10 still had concerns that affected his ontological security:

> *The first thing that I went through was at the time, obviously the big thing was, do we still have a house? And this was only a couple of weeks before Christmas, so it was a lot of concern for me about what is this going to look like for the children and particularly when there's a large traumatic event close to a repeating event such as Christmas, I was quite concerned it was going to have long term impacts for them. I had to rehome my animals for about 6 months after the fire as I didn't feel safe having them there. There was a lot of fear and anxiety. Participant 10.*

Participant 11 felt her loss of ontological security in the *aftermath* moment, shortly after they had made it safely down the hill behind the fire truck. They had no idea where they were heading, or what had happened to their home and their belongings they had left behind:

> *We didn't get back home for about 3 days after the fire. We just stayed away completely until we knew 100 percent certain it was safe to go back. We ended up staying with friends. We*

had no idea if our house was safe, we had absolutely no idea what we're going back to and that was causing more anxiety and stress. We thought everything was gone, absolutely everything. We thought all we have is access to our bank accounts and the clothes on our back. Participant 11.

Participant 12 felt his loss of ontological security in the *crisis* moment of time and believes this is what may have been a major contributor to his decision to leave his dairy farm once he became aware of the impending and intensifying fire during the *crisis*:

I think I'm just winging it, part of me just panicked and tried to evacuate and it didn't work. I think the whole thing felt too big and there was nothing you could do. It was all completely out of your control really. As a farm you are always trying to fix stuff, so you are doing whatever you can to try and make things go away or protect your property. There were just points where you couldn't. When I drove away from the farm, I was driving into the smoke and a big smoke blanket hit and you can't see anything. You are literally relying on memory to see where the road is. When I got back to the house, I really thought it was all over. I thought it was going to hit the property, so I went around the kids' rooms and grabbed some things. I piled all this crap around in my boot for 3 days and I looked at each of the rooms and thought I am never going to see that again. It was just this scary empty feeling of the last time sort of thing. Participant 12.

Participant 13 felt he lost his sense of ontological security during the *crisis* moment of time while he and his family were sheltering in the family home during the cyclone and he had left his property to get his workers from the other house he owned, which he knew had already been devastated by the cyclone:

We picked up the workers, which were about 20 kilometres away from our home and brought them back and then we sort of all slept back at my house for the night. Mum and dad moved back into their place at about three am. And yeah, we tried to get a little bit of sleep. Not a lot of sleep was had that night. Just trying to work out how we're going to move forward. We woke up in the morning and we'd lost a couple of sheds, a house, a well, my house had severe damage to the patio rooms and ceilings falling in from the water. We had to try and find out what we were going to do. And then we just started the cleanup process the next morning. There was not much we could do. We just had to get in there and start cleaning up. Participant 13.

Participant 13 continued to feel a loss of ontological security and that his life had not settled back to a sense of normality. As well, he did not feel safe or secure in the *aftermath* moment of the cyclone:

We stayed in the house for the winter, but it was so cold. We had no ceilings, so we just had to sort of semi board it up. We put wooden boards up on the ceilings, but they weren't sealed. I know my wife was crook, she was pregnant with our second child, and she was sick nearly the whole pregnancy because it was so damp and cold in our house. There was a lot of dampness into the house for sure. Also, just after the cyclone hit there was no communication in the town available, but we were about the only place in our district that could get signal to for Wi-Fi calls. So, we had a lot of people coming to us to try and get a phone call to people to tell their families that they're all right. That's the biggest issue was the signal after the cyclone and obviously power, but we didn't have power for about four months, I think three or four months. We were generated the whole time after that. But the signal immediately after the cyclone was a big issue for people trying to find out whether anyone was okay. We weren't allowed to move around for two or three days, because they needed to obviously work out whether there were any power lines down that were going to hurt anyone, all that sort of stuff. So yeah, that was one of the biggest issues straight afterwards because you really couldn't get to anyone and find out if people were okay and if everyone has got a house to live in, all that sort of stuff. Participant 13.

As a result of the experience Participant 13 went through during the cyclone, he ended up unwell and in hospital in the *aftermath* moment of time, and this is discussed in more detail in the next chapter under the theme of *Guilt.*

Participant 14 was involved in serious flooding in Queensland and had plenty of warning and time to prepare, and therefore, did not find herself in a state of confusion or feeling helpless, as described in the previous chapter. However, she did find that she lost her sense of ontological security in the *prelude* moment of time as it was getting closer to when she knew her house was going to go under water:

I think initially when they were kind of forecasting the flooding, I was kind of curious, like I wonder what does all this mean. And then, when the landlord said the house was going to go under and I had to get out, I was very anxious because I didn't know where I could go. I didn't have family I could rely on, and I thought, am I going to be able to do anything? Am I going to lose everything? What am I going to do with all my stuff? So, it was a very anxious period. Participant 14.

In conclusion, the theme of *making sense of my decisions* has been discussed in this chapter along with the two sub-themes: *what was I thinking* and *loss of ontological security,* as these were the two main consequences that became apparent after the participants had made decisions and taken actions in the disaster, typically in the *crisis* and *aftermath* moments of

time. This theme and the associated moments are revisited in Chapter Eight and how it applies to the current literature and future recommendations.

Understanding how participant's felt after the decisions they made and the actions they took during the disaster provides valuable insights into how individuals make decisions, manage stress, and cope with the emotional toll in critical and urgent situations. By studying the cognitive, emotional, and social dynamics of decision-making under duress, more effective disaster response strategies, mental health interventions, and training programs can be developed that consider the full range of human responses to extreme stress. This, in turn, can improve preparedness, reduce psychological harm, and increase the resilience of individuals and communities during future disasters.

The next chapter focuses on the emotions participants felt after they had made decisions and reflected back on the consequences that were described in this chapter.

CHAPTER SIX-
THEME 3 – “MY SENSE OF REGRET, GUILT, AND ANGER”

The previous chapter examined how people felt after they had made decisions and took actions during a disaster. Two main feelings were highlighted and referred to as, *what was I thinking* and *loss of ontological security.* Understanding these insights can lead to the creation of more effective disaster response strategies, mental health interventions, and training programs that consider the full range of human responses to stress.

Following on from the second theme of *making sense of my decisions,* as the interviews progressed, another common theme emerged as a direct result of the decisions and actions participants had enacted in the lead-up to, and during, a disaster. This theme was called, *my sense of regret, guilt, and anger,* because these emotions are what many of the participants felt once the disaster had subsided and they were able to reflect on the whole experience, mostly in *the aftermath* and *long haul* moments. This theme of *my sense of regret, guilt, and anger* has been described in more detail under the three sub-themes of: *regret, guilt,* and *anger*. The psychological impact of these three emotions is discussed in more detail in the next two chapters of this study.

Regret

The first sub-theme that came to light during the interviews in relation to the decisions that participants made during a disaster, was that many people felt a sense of regret about their decisions. The American Psychological Association (2024) defines regret as “an emotional response to remembrance of a past state, condition, or experience that one wishes had been different” (APA Dictionary, 2024). Participants in this study felt regret for a variety of reasons, each being unique to their own personal experience. While much of the regret people felt was specifically related to a decision they made during the disaster, almost all the participants felt some level of regret about being too complacent in the lead-up to the disaster and also in the *prelude* moment, and that they did not plan well enough and implement enough preparation and prevention strategies before the disaster struck. Both these scenarios are explored in more detail in this chapter.

Studies have been conducted to examine the psychological effects of regret on the individual, with de Bruin et al. (2015) finding that people who are prone to regret are more likely to experience depression, hopelessness, and suicidal ideation. They also found that people who are prone to rumination about these regrets, experience increased incidence of

depression, anxiety, PTSD, and obsessive-compulsive disorder (OCD). The effects of the feelings of regret are discussed in more detail in the *Discussion* section of this study. In total, 9 out of the 15 participants felt regret with some aspect of their experience in the disaster when they reflected back on it.

Firstly, Participant 1 regretted her decision to comply with the emergency advice warnings to evacuate, because she was left in such a state of distress afterwards. She did not know what had happened to her animals after she left her property and whether they were safe. She could not get back to her home to check on them, as the authorities managing the fire risks had roadblocks to keep people out and they did not permit anyone back inside the fire risk area for 6 days after she had evacuated. Every day, Participant 1 would hook up her trailer stocked with food, and try to get back to her property to check on her animals to feed and provide water for them; however, the authorities would not allow her to move past the roadblocks for safety reasons as the threat of the fire was still looming. Not being able to return to her property to check on her animals caused immense frustration and extra distress for Participant 1:

> *If there is a next time, when I am told to evacuate, I would not go. I would stay. Waiting 6 days to return to my house was too long in those hot days for the animals. They suffered for 6 days without food and water. I went through turmoil for those 6 days. I was angry and frustrated and every time I would drag the trailer full of food for the animals and every time I had to turn around and go back. I regretted my decision to leave in the first place. Participant 1.*

In the *long haul* moment, which was when I was interviewing Participant 1, she had given a great deal of thought as to how she would do things differently next time so that she did not have to live with her regret. She knew she was not capable mentally or physically of staying home to fight a fire, so she had devised a plan in case it happened again:

> *I would still evacuate from my home, but I would not leave the area. I would stay away from the fire somewhere safe inside the blocked area, so I would stay just inside the area that the police have blocked off in my car. Then when the fire has gone through, I would return to my home and check on the animals as soon as possible. Participant 1.*

Participant 1 felt that her decision-making and feelings of regret were heavily impacted because of her fear for the safety of her animals. She had taken some of the animals, dogs, cats, and geese, that would fit in the car with her. However, she had to leave behind her

horses, goats, and pigs, and confirmed that her animals were her main priority in her decision-making during the disaster. Her biggest regret was that she had left them alone during the fire.

Participant 5's story was quite different from Participant 1, because she did not evacuate, and as a result, was inside when the tornado directly struck her house. Participant 5 regretted her decision not to evacuate and wished she had left her home earlier in the day. However, her situation and reasons for not evacuating were not straightforward. She did not receive emergency advice warnings advising her to evacuate and the warnings and information she had heard throughout the day were all about the fires that were burning out of control around the town. These fires were surrounding the town and were quite some distance away, as Participant 5's home was located further out of town. At the time, the emergency advice warnings were being issued to houses that were closer to the fires, and so the emergency advice warnings to evacuate did not directly apply to her. Amidst the fires, she was suddenly and completely unexpectedly struck by a tornado. The roof of her house was ripped off in the tornado that came without warning, and her experience of living through the tornado was terrifying:

> *This huge thundering roar came at us, our roof started to lift, I just froze and started screaming my head off. I kept asking my husband, is it gone, is it gone (the roof)? And he kept saying no, we need to get out of here. I grabbed the dog and my husband, and we started heading for the car. We jumped in the car and the rain was coming, it was full on pelting down. It was pure terror from the noise and watching the roof lift off like it was a sardine tin. We were petrified, I wished we had left the house earlier and not had to go through that. Participant 5.*

Participant 5 is still very much affected by the experience she endured during the tornado:

> *We are still staying in a caravan now, while we rebuild and when I hear, or feel high winds, especially as they make the caravan rock, we don't sleep on nights like that, we think, oh no, what's going to happen now. We have fear and anxiety, we have tried putting in headphones to block out the noise, but we end up still trying to listen out around them anyway, just to make sure something hasn't blown away. Participant 5.*

As mentioned earlier in Chapters Four and Five, in *the prelude* and *crisis* moments of time, Participant 9 made a decision to take her daughter to rescue some puppies from her daughter's father's house, which was closer to the fire front than her own house, and in doing so, endangered them both by putting them closer to the path of the fire. She regretted this decision in the *aftermath* moment:

> *Now in hindsight, I realised I made a wrong decision. I think that really, I should have just left the puppies and I should have just looked after my daughter, got ourselves ready to evacuate and prepared the car to go. I still to this day, don't know why I went into puppy preservation mode. Participant 9.*

Participant 9 confirmed that if it were to happen again, and she found herself in the same situation, she would do things differently and prioritise her and her daughter's safety. As was highlighted in Chapter Two, there are very strong emotions linked with regret, such as sadness, distress, guilt, and self-blame. As mentioned above, Participants 1, 5, and 9 experienced these emotions. Participant 15 also found himself with some very strong and unwanted emotions around regret that he experienced as a result of decisions he made during the disaster:

> *If it happened again, I would not have put myself and my wife in that position. That's number one. I would just walk away (from the fires). Nothing is worth saving, you save a house or some knickknacks in it. Big deal. Putting yourself in that situation is rather foolish. I would not do that again. Participant 15.*

Regret is a real and consequential phenomenon. As was also mentioned in Chapter Two, Fernandes-Taylor and Bloom (2011) conducted research that indicated that people frequently seek out post-decision information through which they look for factual knowledge regarding the potential outcomes of foregone alternatives. Fernandes-Taylor and Bloom (2011) suggest that people do this despite knowing the information cannot be acted on as it is too late, and this action can intensify a person's feelings of regret. This theory was similar to what Participant 15 felt after he went for a walk in the local area around his house to explore the extent of the damage in the *aftermath* moment. Once the fire had completely ceased, he wanted to look at the destruction the fire had caused, and on discovery of the severity and extent of the damage, his feelings of shock and regret were amplified:

> *The next morning, we went for a walk, through the ash. It was like walking through a volcanic eruption, you have ash everywhere, all the trees, all burnt to a crisp. There was smoke everywhere. I think I miscalculated the scale of it, because the scale was far beyond anything I would have imagined. Even now, I look back and I go, that was a phenomenal fire. At the time I was terrified. I was absolutely terrified. My wife and I both miscalculated the strength of our commitment and the strength we could actually continue holding on during the fire. That was where we made the biggest mistake. Participant 15.*

In hindsight, when Participant 15 walked around and realised the physical damage and impact the fire had caused and he reflected on the decision he had made during the disaster to return to his home, which went against emergency advice warnings because his house was still officially deemed to be in the active fire zone, his feelings of regret were very real and distressing, even though he knew he could not undo the decisions and the consequences that came about from the fire engulfing his home.

Participant 10 also had regrets about the decisions he made prior to the fire even starting and, similar to Fernandes-Taylor and Bloom's (2011) study, he sought out factual information regarding the potential outcomes of foregone alternatives, even though he knew it was too late to change the outcome of the situation. Participant 10 had purchased an old 1923 timber cottage in a high fire risk area, and it was not until he was in the *prelude* moment of time, and the fire was slowly making its way towards his house, that he started to question whether he had made a good decision purchasing the house:

> *I experienced a lot of fear, anxiety and anger, particularly anger and it wasn't clearly directable. Obviously, we can't be angry at the weather event that caused the fire. But, I guess, it was anger, frustration and regret, aimed at myself, for choosing a house that was made of timber. I mean a brick house can still burn, but it was the little things like, we should have gotten out earlier and there was the risk that I might have actually forced my family to be stuck in a firezone, I was angry at myself for not being more prepared and conscious of what those risks were*. *Participant 10.*

After the fire had passed and Participant 10 went back to check on his house and animals, and saw the damage and realised that over half his chickens had died, it was then that he felt the strong emotions, including regret. He also wished he had taken more precautions prior to the fire intensifying, and wished he had prepared his house better, taking more preventative actions long before he even knew about the fire. He also wished he had evacuated earlier than he did:

> *I felt regret and frustration that I couldn't have just packed up my family and gone earlier and I would have followed later, after I had prepared the house better. Participant 10*.

Participant 11 complied with emergency advice warnings and, at the time, was told that she did not need to physically evacuate, she just needed to be prepared to evacuate. In hindsight, after the disaster had subsided, she regretted her decision to comply with these advice warnings and wished she had evacuated sooner. Members of the fire brigade had

knocked on her door and advised her to be prepared to evacuate. However, they specifically told her to stay at home unless they told her otherwise, as they had taken her phone number and told her they would contact her if the emergency advice warnings changed. She did as she was advised and packed her car and was then sitting at home watching the fires worsen and move closer to her house:

> *We were watching the fire and within 10 minutes it had travelled across the top of the ridges about 14 kilometres. The fire was heading straight towards us, and we got trapped. Two of my neighbours and the fire brigade, we were all trapped on top of that hill that day. I knew we made a big mistake staying here. We had to take a risk that we burn alive up here, or follow the fire brigade down the hill, behind the fire truck. We should have just left when we wanted to. We only stayed longer because we were following the emergency advice warnings. But we really regretted that decision. They should have done a big evacuation of everyone. The emergency advice warnings were not the right advice. Participant 11.*

As well as having feelings of regret about not evacuating earlier, Participant 11 also had regrets about not preparing her house and having a better evacuation plan. She did not have any essential items or clothing packed ready to go in the event of an evacuation and, at the last minute, crammed her aunt and dogs in the back of the car and drove off behind the fire brigade without any of her personal belongings. They could not get back to their house for three days after they eventually did evacuate, because of the fire risk, and therefore, did not have any of their personal belongings with them for that period of time.

As mentioned in Chapters Four and Five, Participant 12 had feelings of regret after he made a decision in the heat of the moment and left his property and his brother alone with the livestock and then drove directly into the path of the fire. Participant 12 also regretted not being more prepared for the disaster. He did not have a proper fire or evacuation plan prior to the fire and, in hindsight, in the *aftermath* moment, he regretted that he was not better prepared:

> *The lesson out of the whole episode was to make sure next time we take more fire preventative precautions. We have improved since that fire went through. We have more accessible water that can readily be refilled. During the fire it had never occurred to us that if the power is not on, you can't pump water out of the tank. So yeah, that was another thing we regretted in hindsight and have now fixed. Participant 12.*

In contrast, Participant 14 did not have any regrets about her planning. Her experience was quite to the contrary, as she was involved in widespread flooding and due to the accuracy

and timeliness of the emergency advice warnings, she had plenty of time to prepare to evacuate her house and shift her furniture and belongings to a safer space away from the flood. She did, however, have one major regret, which was that she gave her dog away to friends to be cared for after the flooding, as he was not able to reside with her in her temporary accommodation, but she found that without her dog, which was her major "soldier", she felt alone and guilty for what she stated was "abandoning him":

> *Initially I felt anxious because I didn't know where I was going to go when the floods hit. Once I had a plan and everything was worked out, I just focused on problem solving and okay, so what's the next step, lets get on with it. I think the only thing I regretted was I felt like I abandoned my dog. He was with people, I mean he knew them, but I didn't really get to see him because where I was living wasn't close to them. For four months, I tried to see him when I could, which was usually on weekends, or sometimes only every two weeks. I felt alone, he had been my soldier, so that was the worst part of it, a proper regret that I couldn't bring him with me and I didn't have anywhere else to go. Participant 14.*

Even though Participant 14 regretted her decision to rehouse her dog, which ended up being for 4 months until she could move back home safely and bring him back, she knew she had no choice about what she did.

As mentioned in the previous chapter, Participant 7 had to make a decision about whether to save his house or his business in a catastrophic fire. For reasons already outlined, he saved his fuel depot business, and in doing so, his house burnt down. He did not regret his decision to save the fuel depot, as he mentioned that the consequences of the depot igniting would have been horrific for the entire community; however, he did have regrets about some of his actions directly after the fire had been extinguished in the *aftermath*:

> *Our children were quite traumatised by the whole thing, and it took us about 6 months to get the kids sleeping properly again after the fire. My wife also really struggled, and I was balancing my availability between work and the disaster relief beast I had created in the community, which was mayhem and tending to a traumatised family. I was pretty much working 19 or 20 hour days for the first month after the fire, trying to tend to those 3 things. My wife got quite depressed, I think because I couldn't provide, and this is also about me as an individual, I didn't provide enough time to the family during that period. I take full responsibility to the fact that I gave her nowhere near what she needed during that time and it created some fairly significant relationship problems going forward. Participant 7.*

In the *long haul* moment when Participant 2 reflected back, she regretted that she was not more prepared for an evacuation and the potential loss of her home. She had packed a few of her important belongings; however, due to the imminence of the threat and the urgency to evacuate in a hurry, she did not have enough time to think through the issues thoroughly and take everything with her that she might need:

> *Luckily, I had a few useful things in the car and my handbag, and I just grabbed a few other things like my tablet and laptop. I do regret not getting other things like medications, a few health things and chargers and more clothes, I regret that, but it was hard to think at the time. What I learned afterwards, is that you don't have time to think, so you have to be ready beforehand. Participant 2.*

Participant 3 also had regrets about her complacency before the cyclone hit. She had experienced cyclones when she lived in the north of Western Australia, and therefore, she was not overly concerned with the cyclone at Kalbarri. In hindsight however, in the *aftermath* moment, she felt differently:

> *I kick myself for being too complacent. The destruction and damage was like nothing I had ever seen. People, including myself were way too complacent. We did not think there would be this much damage. There wasn't enough preparation and planning. The place was absolutely smashed. I just don't think people really expected it to hit so hard in the way it did, and nobody really believed the warnings, it was my biggest regret. Participant 3.*

In summary, although regret is a human-made construction of an unwanted emotion, it is a very real and powerful emotion that many participants felt in hindsight after they reflected back on their experience in the disaster and the decisions they made. Some of the participants felt additional unwanted and ongoing unpleasant emotions such as anxiety, depression, and stress in relation to the regret they felt, and these are discussed in more detail in the next chapter of this thesis.

Guilt

The second sub-theme that emerged from the interviews regarding decisions and actions the participants enacted before or during the disaster was *guilt*. Guilt is defined by the American Psychological Association (2024) as "a self-conscious emotion characterized by a painful appraisal of having done (or thought) something that is wrong and often by a readiness to take action designed to undo or mitigate this wrong" (APA Dictionary, 2024).

Guilt is typically felt after an event when a person reflects back on their actions, or inactions, during an event.

Norman et al. (2018) conducted research with 257 returned combat veterans and found that guilt specifically related to trauma, in other words, negative cognitions regarding one's actions or inaction during a traumatic event, is associated with a host of other negative outcomes such as mental health problems, functional impairment, and interpersonal relationship difficulties. These negative outcomes also include more severe PTSD symptoms. Norman et al. (2018) suggested that guilt should be included as a symptom of PTSD in the official Diagnostic and Statistical Manual of Mental Disorders (DSM-5) (American Psychiatric Association, 2013), as it contributes significantly to functional impairment even when accounting for other symptoms of PTSD. The study by Norman et al. (2018) concluded that impairments in functioning experienced by individuals with PTSD can partially be explained by trauma-related guilt cognitions.

As mentioned, both regret and guilt can lead to increased negative outcomes and functional impairments. Zhang et al. (2021) found close links between the emotions of regret and guilt, and differences between cultures in how these feelings are personally manifested after they studied 1,998 Chinese and American participants. Zhang et al. (2021) found that for the American people surveyed, regret and guilt were closely linked with individuals' perceived failings towards their own private goals and aspirations, rather than with their sense of being of who they feel they should be. However, in the Chinese sample of people, regret and guilt were more closely linked with individuals' sense of failings of their responsibility, rather than their own private personal goals and aspirations. The findings from the Zhang et al. (2021) study suggest that the kinds of failures individuals experience, as well as their cultural context, will have an impact on the severity of their feelings of regret and guilt. The emotions of regret and guilt in this study resulted from both the experience of personal failure and a failure of their sense of responsibility. Many of the 15 participants interviewed felt *guilt* after some aspect of a decision or action they enacted during the disaster. This is explained more in the next section.

As previously mentioned under the sub-theme of *regret,* Participant 1 evacuated from her home during a fire and had to leave her larger animals behind, not knowing whether they would be safe, and she could not get back to check on them for six days after she had evacuated. In addition to the regret she felt, she also felt guilty for leaving the animals behind:

I thought I had lost my house and my animals. I was in shock and grief. I felt so guilty. Participant 1.

Participant 7 felt guilty in the *long haul* moment when he still felt stuck on how to move forward after the fire, and the fact that he had under-insured his house had further complicated his situation:

Now we are living in this tiny rental property and all these other things have smashed us around financially, we were underinsured by half and that's my fault. Participant 7.

Participant 12 felt guilty about leaving the property in the *crisis* moment of time, but also about several other issues that arose once he returned back to the farm after he had left for that short amount of time. Some passers-by came to him for advice on which direction they should head in to be safe from the fire. He advised them to go to a local destination that he thought would be safe. However, in hindsight, he wondered about their safety and whether he had done the right thing by them:

There was one time just where a random stranger drove up and was looking for somewhere safe to go and I said, you can't stay here, you'll have to go into another town. And that messed with me for a little bit because I've just set them off, you're not my responsibility, go somewhere else sort of thing. They were lost and didn't know what to do. Yeah. It's like, well I can't look after you. I'm sorry you're going to have to go to a safe place elsewhere. I felt guilty for that because I should be able to help them, but I couldn't because I couldn't guarantee their safety. I felt this isn't a safe place perhaps go down the road, but then in hindsight I wondered if they made it. Participant 12.

Furthermore, in the *long haul* moment of time, Participant 12 was still struggling to come to terms with the guilt he felt from the decisions he had made in the crisis moment:

I felt guilty with just generally the decisions I made. There was another decision I made right at the thick of it all, about that time that I'd left and come back, another neighbour came up and said, what should we do? And I said, you've just got to just leave. It's not safe to stay in your place. And that one messed with me because they ended up driving to Adelaide that night. It was way too late to leave. This was after I'd driven away and come back and I went and saw them the next day and said, look, I'm so sorry I didn't mean for you to do that, but they were fine with it. Once we spoke about it, they were okay. But yeah, that one, me telling them to leave, they were looking for advice from me and I told them to go, that one messed with me a bit as well because it hit me, knowing what they had to drive through, not knowing this fire, where it burnt to, and the path out probably wasn't that safe, just telling him to leave.

> *People were coming to me for decisions, and I was telling them what I thought was best, but then probably thinking about it probably wasn't. Being in that decision making one makes me uncomfortable. Calling the shots in an emergency I think always worries me a bit. Participant 12.*

Participant 13 felt guilty in the *aftermath* moment of time because he felt so unwell that he ended up in hospital shortly after the cyclone struck. He felt guilty because he was not at home and able to help out with the clean-up, and he felt even worse because he did not know what was wrong with him and the hospital was also unable to find the cause of his pains:

> *I ended up in hospital. I just had these gut-wrenching pains in my chest and stomach, but I could never find out what was wrong with me and it may have been stress. So, I probably didn't handle the initial experience afterwards as well and felt like I probably didn't contribute the cleaning up in those first two days as much as I could because I was obviously under stress of some sorts. Well, that's what I'm putting it down to anyways. I mean we were in fight or flight mode a lot. Participant 13.*

Anger

Anger is defined by APA (2024) as, “an emotion characterized by tension and hostility arising from frustration, real, or imagined injury by another, or perceived injustice” (APA Dictionary, 2024). Participants in this study found they experienced anger for a variety of reasons, which manifested differently for each of them in the different moments of time.

Participant 1 found she experienced anger in the *aftermath* moment, directly after the fire had passed through her property. She attempted on a number of occasions to return home and check on the wellbeing of her animals, but could not get past the official roadblocks that were there for safety reasons:

> *Every day I would drag a trailer full of food towards my house and I got knocked back at the roadblock every single time. I tried sneaking around to find a back way in, but I couldn’t find one. I was angry and frustrated because I was unable to check on my animals and feed them. Participant 1.*

These strong feelings of anger and frustration were compounded by Participant 1’s feelings of regret and guilt about evacuating, and all these feelings were directly attributable to her concern for the welfare of her animals.

Participant 5 reported that she felt angry in the *aftermath* moment of time. As previously mentioned, she had lost her roof in an unexpected tornado. At the same time, her town was surrounded by fire and many homes were lost. Participant 5 felt angry because she did not believe the services, such as the DFES and the government, were available to help her or other community members who had been impacted by the fires. In the *long haul* moment of time, she became aware of a light plane that had crashed in a paddock nearby, which resulted in multiple agencies coming to assist and support, and when she compared that incident to the response provided after the tornado and local fires, she felt angry:

> *I'm angry that those services weren't available to us afterwards, when they could have been because they proved to us later that they could have come. Participant 5.*

In the *aftermath*, Participant 7 also found things were a little tense with his family after the family home had been lost, and he found himself compartmentalising his feelings as a way of coping with what had happened and trying to make sense of the situation he found himself in:

> *Sometimes I think I have an unreasonable anger in me, about the loss of the plans I once had about how life should be. I go and be alone at the property and just think, because I still own the property, it's just sitting there trashed. Participant 7.*

As mentioned earlier in this chapter under *Regret,* Participant 10 felt much anger at the situation he found himself in and, as he explained, this anger was mostly directed at himself for not evacuating earlier and for choosing a house made of timber in a high fire risk area:

> *I experienced a lot of fear, anxiety and anger, particularly anger, and it wasn't clearly directable. Obviously, we can't be angry at the weather event that caused the fire. But, I guess, it was anger, frustration and regret, aimed at myself, for choosing a house that was made of timber. I was angry at the risk I took that I might've forced my family to be stuck in a fire zone and I didn't give them a choice in it. I was angry at myself for not being more prepared and conscious of what those risks might look like for them. Participant 10.*

Participant 10 continued to feel angry in the *long haul* moment of time:

> *I certainly recognise in the couple of years afterwards, particularly in the summer, I would get very angry for no apparent reason. And I think it was probably the third year afterwards, that I really stopped and kind of went, yeah, okay, this is fear based. I don't know if I feel safe in my regional centre anymore because of that event. I think it was just the anger at not being able to, well, I think I know it, it's anger about not being able to feel like I can keep my family*

safe. And I think sociologically, we put a burden on parents to, as we should, to keep their family safe. But when you have chosen a house and an environment that you think is good, and then there's something comes up like this that shows significant flaws or poor choices in some ways, I guess it left me feeling quite exposed and embarrassed and in that way angry and frustrated myself that I had not made better choices that might have been more protective or nurturing for my family and leaving them in what I felt was quite an unfair risk. Participant 10.

Participant 11 felt angry in the *crisis* and the *aftermath* moment after she had to follow the fire brigade down the hill as they were hosing out the flames from the fire because of the incorrect emergency advice warnings that were initially provided. As reported in previous sections of this study, she described her ordeal as terrifying and petrifying, and felt that the fire brigade should have evacuated everyone much earlier than they did. She also felt angry that she had to live through the terrifying experience because of incorrect information provided by the authorities:

We were heading down the hill. I had the dogs in my lap, I was hanging on for life. My Aunty was just trying to breathe because she's asthmatic and she was struggling. You could barely see. And just when you could barely breathe it, escalates even more. They should have prevented the whole things. They should have evacuated us early. A complete evacuation. There's a lot of trees around us, big properties. We were terrified because you could see how rapidly things were changing, you could see all the flames. They should never have done that to us. Participant 11.

Participant 12 felt angry in the *aftermath* when he reflected on his decision and subsequent action of deserting his brother and his farm in the *crisis* moment, as has been described earlier in this study. He felt angry and frustrated at himself because he could not understand why he did what he did:

I think because I hadn't talked about it with anyone, I was letting everything bottle up. I felt angry, probably because I'm just not sure why I did it. I couldn't make sense in my head why I drove off. What caused me to do that. Generally, I'm a calm person in situations and there, I found myself maybe panicking and not really coping in that situation. Participant 12.

Participant 12 ended up seeing a psychologist to help him process and come to terms with some of his negative unwanted emotions.

Finally, Participant 15 also felt angry at the decisions he made in the crisis moment and putting himself and his wife in danger by returning home to a live fire zone and going against the emergency advice warnings:

> *We should not have been there. I should not have put myself and my wife in that position. It's foolish. I would not do that again. Participant 15.*

In summary, as was highlighted in Chapter One, after a person has personally experienced a traumatic event and are left with feelings of regret, guilt, and shame, a psychopathology known as post-traumatic regret, guilt, and shame can develop (Wilson et al., 2006). This psychopathology can exacerbate a dysregulated state that may result in further consequential negative impacts such as extra trauma, violence, abuse, anger, anxiety, fear, sadness, terror, loss, bereavement, or humiliation (Wilson et al., 2006). Although participants in this study did not identify feelings of shame from their experience in the disaster, they did identify feelings of regret, guilt, anger, and loss of ontological security. As just mentioned, this puts them at higher risk of developing further unwanted mental health consequences. The longer-term psychological impacts they experienced are discussed in the next chapter.

This understanding is critical for designing effective mental health interventions, improving communication strategies, fostering community resilience, and enhancing future disaster preparedness efforts. By addressing the specific emotional needs of individuals during and after a disaster, healing and recovery from the disaster experience may be more effective and reduce longer term ongoing mental health impacts.

CHAPTER SEVEN-
THEME 4 – “MY NEW SENSE OF SELF”

The previous three chapters have discussed the unique and individual experiences of the participants in the lead-up to, and during, a disaster event. Chapter Four discussed the confusion people felt in the *prelude* and *crisis* moments and how this led to them feeling helpless and unsafe. Chapter Five highlighted how, as a result of the confusion people felt, their decision-making skills had been influenced; some participants found they made some surprising and shocking decisions in the *prelude* and *crisis* moments of time. Chapter Five also described one of the major impacts on participants from their experience in the disaster, which was a loss of their sense of ontological security. Chapter Six explored some sizeable unwanted emotions that resulted from the decisions and actions the participants enacted in the disaster, with the major resulting emotions being *regret, guilt*, and *anger*.

This chapter focuses on the remaining theme that emerged and has been called *my new sense of self*. In this major theme, three sub-themes were also identified, and these have been described separately under each of the headings of *lessons learnt*, *ongoing psychological impact*, and *I feel different.* This theme has been called my *new sense of self* because, despite the ordeal many participants underwent in the disaster, many found they had come out of the experience feeling different and had gone through a process of re-evaluating their sense of self. In some cases, people felt they had experienced a sense of growth and felt stronger within themselves, and this is discussed in more detail under *I feel different.*

The exploration of *my new sense of self* offers valuable insights into the psychological journey of the participants’ lived experiences in disasters. By exploring *lessons learnt, the ongoing psychological impact*, and the ways in which individuals *feel different* after experiencing a disaster allows for a deeper understanding of the complex and multifaceted ways in which individuals navigate the trauma and upheaval caused by disaster. This understanding is crucial for developing more effective mental health interventions, promoting long-term recovery, and ensuring that disaster response strategies are holistic and inclusive of both physical and psychological needs.

Lessons learnt

Many of the participants felt that one of the biggest lessons they learnt from their experience of disaster was that they were too complacent in the lead-up to the event. Even before they knew a disaster was going to affect them, many felt they did not take adequate prevention and planning steps. As Participant 7 pointed out:

> *It is important to start preparing before the disaster hits, because the decisions you make post or during the disaster aren't the ones you regret, it's the complacency people regret, before the disaster hits. Participant 7.*

Participant 7 reported that if it were to happen again, he would do things differently, he stated:

> *I think I'd be more prepared and be more self-critical and less self-confident. They're probably the key takeaways. Self-critical and self-confidence are in the same thing. And I'll explain it because I was too confident of my ability to function in a bushfire disaster. I think in the future, I will be more critical of myself in terms of the plans I make, the decisions around how I'm prepared and made, um, the preparedness of the community to deal with it as well. And I already have started doing more to be better prepared for the next time this comes and to be more critical of myself and not be so, um, self-assured that nah, she'll be all right. If that makes sense. Participant 7.*

In hindsight, Participant 7 realised it was important to have a proper evacuation plan, as well as developing as many fire preventative measures as he could:

> *I mean, I've already over-engineered everything that I can come into touch with to make sure that it's all fireproof. I've built two four wheel drives up, which are essentially, two-person fire trucks, that my staff here at work can put together with 15 minutes and have them out fighting fires. I have a really good evacuation plan, which we've improved since last time. All our work fire plans are like really, really honed and refined now. And I've got my community and the communities around me all working towards being more resilient, better prepared, more aware, and taking more self-responsibility for how they function in a fire. Participant 7.*

Participant 7 also realised the importance of insuring one's property at the correct market value and would make sure next time that he had done so. The impact of this was discussed in the previous chapter and also in the next section, under *psychological impact*.

Participant 15 also realised in hindsight that he and his family were too complacent with their evacuation preparation and have now taken precautions so that if they had to evacuate again in a hurry, they would do things differently:

> *Now we have a carry bag, we have an overnight bag, we have an emergency bag, we have things that are in place, so we know that we need to run, we run. It takes us 10 minutes to pack up and get the hell out. And that's what we would do. So now we have things in place, but at that point in time, we had nothing. We did, like I said, we didn't even have warm clothes at the time, and I suddenly realised that I was trying to sleep away from the home, and I was cold. Participant 15.*

Participant 15 confirmed that not having warm clothing and other personal belongings was one of the major factors that influenced his decision to return home to an active fire zone and disregard the emergency advice warnings.

One of the other lessons learnt by Participant 15 was that he felt communication from official authorities was not timely or accurate enough, and he believes a better system needs to be put in place:

> *I think one of the things, the takeaways for me are that every community is different. Every little community you have on the firing line feels it differently and behaves differently. By its very nature, a warning can only be a kind of blanket warning for an entire region. And that may not necessarily hold true for where you are. And I think we have to somehow, I don't know how this is going to be possible, but we have to somehow isolate these things and say, okay, fine, this community get out, but this community stay and so on. You know what I mean? Sort of someone with local knowledge can break that down and give you real time information and say things that would actually make sense to you on the ground. I don't know how that's possible on a larger scale, because we are a big country, and we have big fronts. Participant 15.*

Although Participant 15 felt a more accurate and timely method of communication needed to be put in place in disaster situations, he also acknowledged the complexity of doing so:

> *So that is the tricky bit. Part of it, I think, is because we don't have enough resources as well. And that's what happened for us, because what happened was our volunteer fire mob was diverted to go to another town, which is an hour's drive away from us because the fire had started north of us. So, they were all pushed to that end. By the time they turned and came back, our bit was already on fire and had gone through and we didn't have anyone down our way because simply because the resources were so stretched. And I think that's the problem.*

So, this is what I'm coming to, that the fact that locally speaking, there aren't ways of actually telling you what is going on outside of your local community. The warnings coming from further away and so on are sort of generic, large-scale warnings that don't necessarily have any impact on you down on the floor. Participant 15.

Participant 3 also felt that the major lesson learnt was that she was too complacent along with the majority of the town in the lead-up to the cyclone in preparing their houses and businesses properly, mostly because people did not really believe the cyclone would hit so hard:

It was about four or five days prior to the cyclone hitting that we got the warnings. Everyone was sort of was looking at the news and the warnings coming, and there was initially a high probability that it was going to miss; that the cyclone was going to cross further up the coast, so I don't think anyone took it too seriously. Everyone was a little bit complacent. Not too many people were taking precautions. I, myself had been in cyclones before. I've worked up north and cyclones have hit and they've been strong, but nothing too concerning, so I wasn't too phased about it to be honest. I think everyone probably didn't think they would have a direct hit, so they're a little bit complacent. So I had been working the Sunday shift during the day and, the evacuation warnings were increasing and people, I think, started to realize that maybe it it's going be more than just a storm and it is going to hit the town a bit hard. Participant 3.

The actual experience of what it was like in the *crisis* moment for Participant 3 was described in the section on *loss of ontological security*. She described her lessons learnt as:

If I had my time again and lessons learned, I wouldn't have been so complacent and I would've prepared my house, prepared myself, prepared my kids, prepared the town within my job. I guess would have taken the warnings more seriously, maybe try to get more people to evacuate. I don't know, it was sort of just all so surreal. It was all just too overwhelming, too much to deal with and too much devastation. Participant 3.

Participant 1 felt that her main lesson learnt was that she would not go through what she went through again, and that if it were to happen again, she would not evacuate the area. She stated:

I wouldn't leave. I'd be actively fighting the fire if I had to. I'd rather die fighting the fire than leaving my home and go through that again. I don't think my stress levels could handle that again. My stress can handle fighting a fire, I can actually handle fighting the fire, losing everything, but not evacuating and losing everything. Participant 1.

In hindsight, Participant 5 also realised she was not as well prepared as she thought she was, and subsequently made many changes to her property in preparation for another disaster occurring:

> *We learnt a lesson, you know, you may think your house is strong, but until you go through it yourself, you realise it really isn't. We've made sure our house is super sturdy now. I'd be very surprised if a high wind took it, but it doesn't stop you from worrying about it, but I would be very surprised. Participant 5.*

Participant 2 felt the lesson she learnt was to be prepared, because in the heat of the moment, one does not have time to think:

> *What I learned from the fire was that you don't have time to think, so you, you've gotta have it ready beforehand. Participant 2.*

Participant 4 learnt a lesson by identifying some positive personal qualities she realised a person needs to develop to be able to get through a traumatic event, such as her experience in the fire:

> *I actually used to wonder what resilience is for, but I'm actually beginning to understand what resilience actually does in life now. Resiliency gets you through life. It gets you through life and it actually slows you down, to participate in life, not be a victim to it. You actually do, and get involved in things rather than sitting back, saying I'm a victim, you can't do this, but you override that. Like not every day is gonna be amazing. And I've actually learned, I've always lived in that perspective, ah, you've gotta be positive to get well and enough you've gotta do this. And I'm realizing you actually gotta also, go through these things and just deal with it as it comes up as best you can. There's no right way and there's no wrong way. There's no one telling you off, there's no one saying you're good. Just however you get through it. It's like that song who sings that song, what doesn't Kill you makes you stronger? So, I've just learnt from it. So, and you know, I guess we all have our own individual journeys, and we are all unique and we're not all the same. So, we all face it differently, you know, and that's the way I've faced it, you know, the challenge. Participant 4.*

As well as realising that one needs resilience to keep going, Participant 4's experience of the fire led to her feeling different, and this is discussed in more detail under the theme, *I feel different*. Furthermore, Participant 4 felt there were lessons to be learnt about burn-offs and she felt that current policies and procedures are not appropriate:

In national park areas they're doing burn offs. They've gone a bit fearful though, with the burns, because they're burning like Banksia trees which don't ever grow back and that's food for the protected cockatoos. And if the wind blows, there's a town, you know that's going to burn. I just feel, my interpretation of, if we want to get things right, policies, I feel and there's a group of us who are more conservationists, but we also want to follow, you know, protocols. But we feel that we should be listening to the landowners, like the Aboriginals and doing it their way, they're called matchstick fires and they do it a certain time of year, like the six seasons and we really want that in place. Not some, blanket approach of, all we gotta do is clear the land. Participant 4.

As well as listening and learning from the traditional owners of the land, Participant 4 believes that changes need to be made at the political level:

I feel we should be taking that into parliament, working with them on policies and how, and listen to these people who know what's going on, because when it comes to the bushfires, I feel I'd love to bring that way of the land, their conservation, because they've lived off the land, they know how not to abuse it. Whereas we, whites, come from fear. We should be listening to the elders on how to handle the bush fire management. We should all be following the Aboriginal way because they've lived on this land they know this bush land, not just putting in two meter bush clearances, because that doesn't work. They just destroy the habitat and we don't want to destroy the habitat. We should be trying to do it naturally in conservation as possible. We don't wanna create more endangered species just because of our fear. So that's where I would come from if anything I got out of the fires. Let's do it, it should be done the right way. Especially in Australia. Participant 4.

Participant 4 voiced strong concerns that Australia's current bushfire prevention approaches to clearing land and doing burn-offs is not the most appropriate method.

Participant 8 felt the lesson he learnt was that resilience, mindset, and perspective was taught to people from a much younger age:

I think the mindset that we've got now, we didn't have until we were forced to go through this trial literally by fire. Um, and I guess if people can somehow, I mean you are a specialist in the area of being a psychologist, but if some of the life lessons that we learned, I think God, if we could, if they could be taught at school, you know what I mean? It's all just about mindset and perspective and framing everything. That's a lesson learned for me. It's like, my God, we had to do it the hard way, but this stuff is like learnable. Um, you know, if there were programmes and what have you, that would be absolutely brilliant. My theory goes we are literally, despite having lost everything in the fire, like we are better off than 99.9 per cent of

all of human history. You know, we, we still do live like emperors. And once you think about that, uh, and then you think, well, you know what, all that stuff, is just stuff, we are still here and the most important stuff that we care about is here. So yeah, it's learning, uh, that sort of um, I guess detachment so that you aren't so anal about all your shit. You know, it's just stuff, and you learn the more important stuff in life, what's really actually important. I just wish that other people could get that without having to go through the trauma. Cause it's still traumatic, you can't lie about it. Participant 8.

Participant 8 also felt that people need to learn about climate change, and take it more seriously, and felt that people including himself are too complacent about disasters:

So, we need as a society to think, um, long and hard about this cuz I don't think insurance is gonna allow many people to stay and there's so much poverty. It's relative you know, there's such a low socioeconomic demographic in the hills. Some people just can't, couldn't afford insurance then, they certainly can't now, we need to reconsider this stuff. Like what's viable with climate change kicking in. Another thing is climate change is here and it got very personal and so I'm a bit angry about that. I've started doing things like I wrote a kid's book, which is environmental activist book. I'm trying to get together another one on ecology, it's like made me feel I need to be a bit more of an activist on this. Biodiversity has never been more important. It's woken me up, it's made me think, you know, life's short. I really should be doing this shit and I'll just have to make it happen. I should have been doing it a long time ago, but oh well, but late than ever. So, a bit of a wakeup call. Without doubt. Yep. Yep. I think we're far too complacent and we're fat, dumb, and happy here in Australia. Participant 8.

Participant 9 learnt what was most important after her experience in the fire and she took action afterwards to ensure that she had learned from the encounter so that she would not make the same mistakes again:

Well, I always thought I was a bit organised, because with the kids, I go, right, if there's a fire, we're meeting at the letter box … if this happens … we're doing this. But then I realised you can't actually prepare too much, because every situation is different. And after this I realised that really my most important things are my children. And then second things, you need your documents and your photos. So, I've then organised to have them, I put them on Facebook so they're in a cloud or they're somewhere, so I don't have to worry about physically running around looking for these photo albums and crap because after the fire I drove around with them in the car for weeks after and then I figured, well, that's just ridiculous. I could have a car accident and they're all gone. So, it has made me actually look and evaluate what's important and what I need to do to make life a bit simpler. And now I have put more sort of concrete plans in place if it were to happen again. Participant 9.

Participant 10 felt the biggest lesson he had learnt when he reflected back on his experience was that he had been too complacent in his preparation in the lead-up to the fire:

> *Complacent. Yeah, I think that's probably a perfect description. Yeah, I think I was too complacent, because my partner was even about to get in the shower and we sort of go, I'll just have a shower and then we'll go out for the day when we heard the helicopter. So, I think complacent and very poorly informed as well. I think at that point, we've been living in country South Australia for two or three years. We've both grown up in the city, and I don't think we had then really considered what the landscape was like and how quickly a fire could move through that. So yeah, complacent is probably a very good choice of words for that. And so, it was a matter of grab this and that, and we always have had a box or so of the important documents, passports for certificates, things like that. So that got thrown in the car, the kids got thrown in the car. I've got the woollen blankets and some bottles of water, and we just got out. I could have done more preventative precautions around the home, and I have certainly done more since the fire. Participant 10.*

Participant 10 made a point of stating that he usually undertakes minor preventative and fire preparedness actions as a routine and ongoing practice, such as keeping his gutters clean, but he realised in hindsight it was not enough:

> *So, I've always been good with the gutters and things like that. And what I would tend to do is, whilst I clear the gutters regularly anyway, as a point of just good housekeeping, but what I was doing was putting tennis balls in the downpipes and then filling up the gutters with water that way it was flooding, and it's not going to hold a lot of water, but what it can do is delay the eaves burning and things on the house. So, I've done some things like that, and as I said, I'd opened up the rainwater tanks completely, so there was probably 60 or 70,000 litres of water flooding the backyard. But certainly there was more that I could have done, should have done and I have done since we've installing better fire safety and things around the house, and we've definitely in the years since established more of a clear fire plan or extreme days as well as catastrophic days about if the kids at school who is most likely to be able to get them, at what point we just decide that we're leaving work or home or whatever and where we go if that's going on. And that's certainly been something that we've continued to develop in the last couple of years since because of the, I guess, the lack of preparedness that we felt after being caught in that event. Participant 10.*

Participant 10 also learnt from experience to plan for essential things first and foremost:

> *But I think the big lesson has been get out earlier with the essential things and also have those plans in place. So, I know that if we are going to hit a period where it's going to be*

catastrophic fire days for a week, I have a plan for the animals where they go. And so, I know that that's coming up. So then three or four days beforehand, the animals were all farmed out and put elsewhere just to protect them for that period of time so that whatever we choose to do as a family, we don't need to worry about the animals. Participant 10.

Participant 11 also felt she had learned a lesson to prepare better and now knew which essential items to pack and take in the event of an evacuation:

100 percent, we totally experienced more anxiety and distress as we were not prepared. All we had access to was our bank accounts. That's about it and the clothes on our back. That was literally it. The lesson was, learn to prepare and what's important to take. We definitely weren't prepared. Participant 11.

As a result of not being prepared to evacuate at the time of the fire, Participant 11 now feels that she would be more confident if it were to happen again, as she is better prepared as she learnt valuable lessons. She even feels that she would be more capable of helping other people in a disaster. This is discussed in more detail under the section, *I feel different*.

Participant 12 also felt one of the most important lessons he learnt in the fire was to improve his preparedness and preventative measures against fire risk in case of any future events:

That's a lesson out of that episode is what we've improved the general maintenance since then. And yeah, probably just lifted our game a bit since that, as we get further away from it, you get into this sense of complacency again where you stop doing things. That idea that will never happen again. I think we've got a better idea now, a better evacuation plan and knowing that every incident's going to be different too. Some you won't have that time to make the decisions. So just being a bit more flexible in what you're going to actually do and where to go. Participant 12.

Participant 13 also learnt lessons from his experience of the cyclone about preparing his house better in case of another disaster and ensuring he takes better precautions:

When we've built a new shed and the guys are like, oh well the footings only need to legally be like this and we just said, no way, we're upping it. That's how we do things now, it's definitely a lot stronger than what we did before. We think about the cyclone happening again for sure. Whether it does or not, I don't know, but that's how we think when we go to build a structure or whatever now. Participant 13.

Ongoing psychological impact

In *the long haul* moment, approximately 8 years after Participant 4 lost her home in a fire, she still feels triggered when she sees or hears about fires in the area. Participant 4 becomes quite anxious and tries to make sense of the situation by desperately seeking out more information. Participant 4 now feels she needs to understand the minute details about fires so that she can formulate a plan of action. She stated that without the certainty of being able to plan and knowing what is happening, she feels in a state of limbo and unsure of what to do:

> *When I hear or see fires nowadays, I think I still have trauma, as news of them triggers me. When there's a fire burning, I keep looking to see what grade it is, and I want to know where the fire is. I actually want to go and see where it is, and sometimes I have, but I get turned back of course. It's like I need to see it to know what's going on, and it's like hurry up and get on with it, if it is or isn't coming in my direction, it's the anxiety of also not knowing which way the wind is blowing. Participant 4.*

Participant 15 reports that his wife now experiences a type of hyper-vigilance when she thinks there could be a fire:

> *I think my wife is still suffering from a bit of PTSD. She still has issues. She looks at the app every single time, as soon as she smells smoke, she can't really go to sleep, especially at night. It's like if she sees anything orange as well, like a glowing in the horizon. Like the other day we were driving into the city and there was this sort of glow from the top of the mountain nearby where we were, and she was freaking. I was driving and she was like, absolutely freaking out, saying we have to tell someone, we have to tell someone there's a fire, there's a fire. And I'm saying, no, it's not a fire. Don't worry about it, it's not a fire, it's just a truck backing out; when they back out, you see the lights at the top of it. It's just that, it's a fire truck. I can see it's a fire truck. Don't worry about it because you can't see any smoke. It's okay. There's no smoke. So, issues like that every so often crop up. And she still genuinely worries about that kind of thing. She wants to sell up and move, whereas I don't. But we probably will sell up and move at the end of the day. Participant 15.*

Participant 3 also feels she experiences ongoing PTSD symptomology in the *long haul* moment, is hyper-vigilant, and worries about certain sounds that trigger her:

> *I didn't even consider going to an evacuation centre, it was just too far away. For the majority of the town, they chose to stay in the town and ignored the emergency evacuations warnings. I think for me, like I've got PTSD now. I'm trying to be medically retired from work. I think, the*

stress of this, it was kind of, it wasn't that that did that to me, but it was like the straw that broke the camels back. It was the last thing. I've suffered a lot of traumas and seen a lot of things and I just had enough of it now. Also, now, whenever I hear loud bangs, or strong gusts of winds, or cracking type sounds, I freak out, I get retraumatised. It's awful. Participant 3.

Participant 10 also experienced a type of hyper-vigilance after the fires which led to ongoing feelings of fear and anxiety:

But for the next probably, two months, I recognised that I was particularly on the way to work, very hypervigilant about all of the plantations. Cause there's a lot of farmlands around us that was around. And because obviously into January, February, and even March, it was quite hot that year. And I was very, very hypervigilant as to what's going on and where are the weeds and where is the growth and what has burnt and what hasn't. And I think there was probably a lot of residual shock, certainly for that first few months afterwards that wasn't being processed very well. I experienced a lot of fear, anxiety and anger, particularly anger. Participant 10.

Participant 10 also described how his wife reacted for several years after the fire, noting that she became highly cautious and unwilling to take any risks regarding her sense of safety. She would also pack up the children and evacuate long before they had been advised to through the emergency advice warnings and before a fire would even reach a catastrophic threat level:

I know that for a year or two afterwards, it would only take an extreme fire day and my wife would pack up and get out of the house with the kids rather than the catastrophic level. So, there was certainly some residual there for a while where it was, okay, we're just going to pre-emptively not be around for these things. Participant 10.

Participant 7 still experiences feelings of frustration, anger, and mild depression primarily because he felt responsible, they were underinsured, and he feels stuck about rebuilding, as has been described in the previous chapters:

So, the insurance could only pay out to a certain level. Cause I never thought I'd lose everything on that property all in one fell swoop. So, I was only insured to half of what it's going to cost to get that whole thing back. So of course, we can't rebuild. And so, we're living in this horrific little, tiny rental property with rapidly growing children and I mourn on the loss of the plan and the future we couldn't have. We could have had, if the fire hadn't come through. And that's one of the big, well it's probably the biggest thing, that's impacted me

because it's a source of frustration. It's a cause of, I think, unreasonable anger in me. It's a source of, very mild depression. Like I still have bits of my life compartmentalised and what I like to do is go and be alone on that property and just think. I go there and just, you know, try and do some tidying. I think through the things that I know I've boxed up and put on the shelf, sit there and individually just, you know, mindfully unpack them and go, right, I'll sit in this box that's still there that needs dressing. And I think that's how I worked through it. Participant 7.

Participant 1 also experiences some hyper-vigilance and psychosomatic symptoms, such as thinking she can smell smoke from fires, when there are no fires nearby:

I am still stressed. I mean, every time there's a siren, you're like, where's the fire? Every time, you know, smell smoke in the middle of the night, and I was like, that one's weird, because there's nothing, there's no fire around, but I'll smell smoke and I and wake up in the middle of the night and go, where's the fires? I've been to the doctor and now I am on anti-depressant tablets, and I have high blood pressure now. I've just had a referral to the chest pain clinic, I have to get checked out for a heart attack and stuff, I know its stress related. I used to be a very level-headed person, calm, collected, could put something together. I can't even think these days, no words, or anything. Participant 1.

Participant 5 also finds herself on high alert and experiences highly reactive feelings and actions if she is triggered by noises or smells of a potential disaster. She talks about a recent fire after the tornado, and other fires that affected her town and explains:

We've had resulting fires since that tornado event. Just recently actually, and every time, everybody's on edge. They were burn off fires that got out of control, so it was actually in the street. It's not so much a street, it's more of the pastureland and a natural reserve. But the burnoff had happened in there and then got out of control and the winds were blowing our way. So, we are like, oh my god, you know, we are only just starting to get back on our feet now the fire's gonna take the bloody house. We were petrified. So, we were on watch all day that day as well. Also, when I hear high winds and they make the caravan rock (we are still living in a caravan), we don't sleep on nights like that. We think, Jesus, what's going to happen now. I have fear and anxiety, it's like, is it going to go, you know, you are more or less waiting for something to happen the whole time, until it calms down. Then you're like, okay, now we are safe. When the high winds happen, we go around the caravan and make sure there's no debris and we put earplugs in. But they don't work because we just try and listen anyway, you may as well not have the earplugs in because you listen in around them to make sure something hasn't blown away. We are now extra vigilant. Participant 5.

Participant 2 describes the ongoing psychological impact for her:

Anxiety occurs quite often and that makes me feel I can't do things. I did get some counselling for a while, which was helpful and it was just important to talk about it. Confidence has also been difficult for me to handle and just being positive. Also, whenever I see smoke, I wanna know what it is, where it is, what's happening. They do burn offs here and there was some awful black smoke, I didn't enjoy that very much. Participant 2.

Participant 6 has experienced many fires in her life and has now been diagnosed with PTSD because of what she has been through. She also frequently experiences hyper-vigilance and flashbacks if she sees or smells signs of fires:

I've had a lot of nightmares. I had like flashbacks and I'd wake up in the middle of the night in cold sweats and stressing, and then have to go around the house and check, because I swear it was on fire. Now, I can't deal with fire. I go to pieces as I am an emotional wreck. Participant 6.

Participant 8's wife, who also experienced the same situation as Participant 8, explained that the main ongoing psychological impact for her is that she feels she needs more protection now. She experiences greater worry if she encounters physical symptoms of a potential threat, such as seeing or smelling smoke in the vicinity, and she feels she needs to know she has enough protection around her to feel safe:

I am a little bit more worried now. I get anxious if I see smoke. I want more protection on this house, like sprinklers on the roof and all that sort of thing. I need more assurance I think. Participant 8.

Participant 9 describes the ongoing psychological impact for her stems from a type of hyper-vigilance, which triggers feelings of PTSD:

But it was just that point of driving home and then living in that sort of nightmare of going to get those puppies that I still think about that now, whenever I see the fire planes go. It's like a type of PTSD effect, it's a reminder and I hear, or I might see the planes go and, I go, oh god, oh crap, what's happening? And I am sort of heightened, that I'm going to have to respond to something. Participant 9.

Participant 12 felt he went through quite a psychological ordeal after his experience in the fire and lost confidence in his ability to competently cope with future emergencies:

I still have flashbacks to that whole, why did I go thing? This last summer wasn't bad. So those days that were sort of triggering or there was one day where it was hot, windy and whatever, and I was on edge that day. I was just watching stuff outside, watching for smoke.

I, I've still got trouble with, so I've had to call triple 000 a few times since then for different things and it puts me in this real terrible place. I don't cope with these emergencies or things that are going on. I can't explain that one. I have to think more about what it is. One was a tree over the road in front of our property and I had to call 000 to get the CFS there and it was the adrenaline rush. That's what it was. It was two hours of stopping traffic and moving tree with the tractor and all of this stuff. And when that finished, I sort of threw up, the adrenaline just from going through that whole experience just turned me into a wreck. Yeah. And then just fearful of calling triple 000 an emergency now, which I've seemed to have had to have do it quite a few times. I'm fearful of calling 000, if I had to do it, I do it. My elderly father took a fall and I had to call 000 then to get an ambulance to attend. That one wasn't as bad. But still those same feelings, that anxiety of you're about to start an incident or something like that. Participant 12.

Participant 12 pointed out that since the bushfire, he has felt different and struggled to manage his unwanted emotions by himself. He ended up seeking counselling to come to terms with the decisions he made and the actions he took:

Yeah, I dunno what that is, but something's changed since the bushfire in that area. I feel panicked. Knowing something's about to unfold and you dunno what exactly is the outcome of this is going to be, I dunno, I can't put a finger on that yet, on what's going on there. So, I spent a fair bit of time with a counsellor after the bushfires. It took me a little while to get there. I don't know, it was at six months after, when I realised, I wasn't quite dealing with any of it. And I probably spent six, eight months or something on a regular basis just talking about all that stuff. And that certainly helped just being able to talk about it and got me to a position where I can talk about it openly now. I think back then because I hadn't talked about it with anyone, so I was just letting it all bottle up. I think not just having someone talk back with me that you left for a reason. Obviously, whatever it was, wasn't a stupid thing to do. Just being told that made it better. Being told I think the decisions you made were right for the circumstances you were in. Just talking through that because I couldn't make sense in my head why I left. What caused me to do that. Generally, I'm a calm person in situations and there I found myself maybe panicking and not really coping in that situation. But then coming back and dealing with it. That was the funny part for me. Should've, just one part of me should've just kept driving and if I'd left, I wouldn't have got back in. Yeah. I dunno, dunno what got me to that point. I feel more at peace with it now and now it just only slightly bugs me now. Participant 12.

Participant 13 also feels a degree of extra concern and more on edge now than he did before his experience in the cyclone, and it has also affected his children:

You get strong wind now and you really think about it, you're thinking, whoa, that is strong winds worry. I look at 'em and go, oh nothing. Nothing's going to blow away, because I know how strong a wind has to get. But when you do feel the strong wind, it's kind of in your back of your mind. It can worry you a little bit. Not in any way that's alarming to me. Oh, you know, should probably go and see someone about this or anything. But it's just sort of probably brings back little memories I suppose. My son experienced anxiety and worry for a little while afterwards. If it was windy he would get scared. He'd get scared at night because it happened at night. So nighttime was a bloody hard thing for him for a couple of months afterwards. Participant 13.

I feel different

In the *aftermath* and *long haul* moments, many of the study participants felt different after their experience in the disaster and that their connection to their community and their sense of belonging was stronger than before the disaster struck. The participants felt that their sense of community and the help and strength they provided to each other was how they made sense of what had happened to them. Many felt they had even grown from the experience. However, it is important to note not all the participants felt this way, and this is discussed later in this section.

In the *aftermath* moment, Participant 7 fostered a closer sense of belonging with his community when he realised that the town was cut off from help and support, and the residents that were still present in town had to somehow help themselves and appeared confused about what to do and how to move forward. Even though Participant 7 made a decision in the *crisis* that cost him his home, he was still able to find a connection to his community and stepped up to help the community move forward:

Then the next morning, the heavy danger was over and that's when I started up a disaster relief effort here, because the cavalry simply was not coming. It took 16 days for the government to finally come into the town and start doing some things. So, we had 16 days of pretty good community co-operation and working together. The morning after the fire, I had fought the fire all night, I went to the main street and I saw these people walking around, trying to get their phones to work. It was like zombies, literally. And I went, somethings got to be done about this, so I grabbed a couple of people I knew in the street, and I said find every person you can and get them to come to the town oval at 11am and pass the word around that we are going to have a town meeting and try to figure this out. Participant 7.

Participant 7 was able to communicate with the rest of the community, and together they started working out what needed to be done to start to recover from the impact of the fires. Participant 7 believed the key to growth and becoming more resilient as a community is for the community to pull together:

> *I guess, the key message, is that decisively you can prevent so much negative trauma response by empowering a community to do what it has to do, that it determines after a disaster or traumatic event; if you empower the people affected to sort themselves out, rather than trying to do it for them, you get a far superior outcome. That includes decision making as well, we had to make our own decisions and fill in our own gaps informationally, as there was no information coming through and we used innovative can-do approaches to things, not just simply sitting there relying on our mobiles phones to deliver us some information*. *Participant 7.*

Participant 7 was heavily involved in the community and its recovery efforts after the disaster, and he highlighted how acting as a community, rather than as an individual, made it easier to make sense of what had happened during the disaster, move forward and learn from it, and grow stronger and feel more connected:

> *What we learned as a little community here, and I've had this feedback a lot, is the fear of the future is massively lessened because even though the community might not have that resilient capacity to fight the fire themselves, you know with their bare hands, they know they're in a community that even if they do lose everything, they'll be picked up and supported in a unified, compassionate way after a traumatic experience, they know they've got the empathy and the resource there in the community to actually have collective resilience, not just the individual resilience and that's reinforced a lot of people's decisions to actually stay here and not move away. Participant 7.*

Furthermore, Participant 7 felt that the community had experienced growth and was in a much better position because of the fires:

> *And one of the key things I say to the other 83 house owners that lost their houses is, you've gotta remember we got a lot more out of the fire as individuals and families in the community than we lost. And you've got to put yourself on the front foot and look forward in life and congratulate yourselves for how you actually, you know, handled yourselves in a shocking traumatic environment. Not worry too much about the material stuff you lost, because as a community we're so much better off now for having gone through that fire. We have better cohesion, unity, empathy, compassion, and just understanding one another. I mean, this used to be one of those towns where the footy club never spoke to the churchy people and*

the school mums never spoke to the, you know, whatever other, you know, stove pipe in the community we had. And now that's all gone. The community's fantastic because they went through shared trauma together and triumphed. And I think that's a really crucial learning that I've certainly taken out of this for the future. Participant 7.

Similar to Participant 7, Participant 10's sentiments about the community pooling together to become more resilient were shared, particularly as he felt the authorities did not provide enough support in the *aftermath* moment:

And perhaps it's just because the fact that not the country was on fire, but I don't feel like there was good psychological support for people afterwards with how we process what that loss is. So even for people whose houses remained, there was a lot of livestock, for example, cows that when that fire came through, they lived, but their legs and their udders were burnt. And it meant a lot of these people had to go around and put down animals. And whilst being a farmer and working regionally, you can certainly become used to putting down animals, but just the sheer volume of what that meant and dealing with that I don't think was ever supported well enough. I'm not sure that any of the resources that were made available, probably they knew how to do that or were available to do that and just kind of provide that psychological support that a lot of people probably needed around how do we rebuild and go forward from here. Participant 10.

Participant 10 believed his farming experience of regularly having to make difficult decisions, such as putting down livestock, likely prepared them for moments of tough, pragmatic decision-making. However, the magnitude and scale of the fire presented an entirely different kind of challenge, one that felt overwhelming and required broader community support:

So, I think what would be needed would be probably some big community, I'll use the word gathering, cause I can't think of a better word, but just something that's facilitated by somebody with good clinical experience in leading community conversations and just a forum where people could kind of go, yep, this was my experience. So that we could communally have our voices heard and shared. And like I said, in a lot of ways people pulled together really, really well and we supported each other. But to be able to just have those stories and kind of go, yeah, actually look, this is my story. Because I think for a lot of people, and me included, there was a guilt around, I didn't lose my home, so should I really be going getting that voucher? Or can I find a way of just stretching the money I've got for another week or be without going to the food bank because somebody else is, no doubt got it worse. And obviously people did. But I think just having that community voice of this is our shared

experience and it's okay to think it sucks and to find it hard would've been very beneficial. Participant 10.

This message was also reiterated by Participant 2 who lost her home in a fire and stated that she could not have come through the whole experience without the help of her community:

People in the community said, if there's anything you need, just ask. So, I accumulated things very easily in that way, the physical things, people were extremely generous. They really were, they wanted to help. I mean, that is the most moving thing about the whole thing. It brings a tear to my eyes and there's no way I could have got through it all, without the help and support of my community. Participant 2.

Participant 4 also found a sense of connection to her community in the *long haul* moment. Participant 4 felt stuck and did not know where to begin to move forward. Thanks to her own faith and help from people in her community, she found some strength and started to move forward with plans to rebuild:

The generosity from the community was outstanding. In fact, you know, it was over the top. It was just amazing. All the victims, we all got together and that was our strength, because we'd meet parents and just chill and we just became friends through the whole process and building again. So, this community really stuck together, and this community was amazing actually, the generosity was just flowing and there wasn't a need that wasn't met. I had no idea what I was going to build, but I had always had a dream I wanted to go alternative, like environmentally friendly, because the materials in my original home were cedar. So, I had researched straw bales, they are termite free, fireproof and just a really wholesome place to live. The shire approved my design and then my son got involved, my community got involved. I put out a little flyer saying I'm building; I lost my house in the fires. I'm building a straw bale home and there were a few people that wanted to learn about it. So, I'd put on a sausage sizzle, free drinks, water and whatever I could, and I'd have this group of people come up on weekends, coming to help me build. And that was me rebuilding my life, getting the community involved and they loved it. And I am not saying it was all roses, there were times when I was just looking at my house, half finished, not knowing if I had the strength to carry on and do the next gyprock, you know, I had to really push myself. But you learnt about resilience and putting things in perspective. I now feel a lot more optimistic. Participant 4.

Participant 15 also found the sense of belonging and connectedness within his community to be far stronger, both during and after the fires:

Everyone looked after everybody else, because at the end of the day, it's a communal thing because if this goes, then yours goes as well. That was the most remarkable thing, is that you sort of realise the worth of humanity at that point. That people, you had nothing in common with, people you had never met in your life. People you said hello to on the road, but never really had a cup of tea with or nothing at all. When something like this happened, you all were the front, you were all there. And that was remarkable. In a kind of communal sense, we got together and went, okay, fine. Where is it coming from? Where it's heading? Has that been cleaned out? Who's looking after that? That kind of way. Participant 15.

Participant 10 also felt his community was more connected after the fire:

There was a really good community spirit afterwards. So a lot of people that had, and again, I think this is just from being in the country, but a lot of people that have got trailers with fire pumps on them, so big tanks and pumps for pumping water, and anybody that had long extension hoses, accords rather, and these things, we were compiling them all at a community centre, and it was sort of organised so that we could routinely go through people's properties and make sure that things were being stabilised and supported beyond just what the CFS was able to do. That certainly felt quite good. Participant 10.

Participant 10 also explained how this sense of community spirit continued well into the *aftermath* and *long haul* moments of time:

Even up until a year and a half ago, there was still work on fencing and rebuilding some of the structural supports on people's properties being done by some of the Lions Club from the regional community, which has been good. And up until, I think the beginning of last year, there was also a food bank truck that was coming around once or twice a week, and it was with decreasing frequency, but certainly in the early days when things reopened in town, it was there on a very regular basis. And that was really, really important because, for a lot of people that lost their homes, or significant time with work, actually having people that were able to bring food and just make sure that there were supplies for people was really important. And those trucks and vans were also then coming out onto properties where people have been doing 12, 14, 15-hour days rebuilding fences and putting out spot fires and just actually making sure that there was food, which was really key, and I think made a lot of the difference for a lot of the community. A lot of us felt a lot better for it. We we're feeling a lot more united through that, I believe. I think people were more grateful for the things that had been saved and what we were able to do as a community to move forward rather than throwing blame at each other. Participant 10.

Participant 1's experience of feeling different after her involvement in the fire was in direct contrast to the previous experiences of other participants just described. She did not feel more connected to her community, or that she had grown from her experience; in fact, her resulting feelings were quite the contrary and she has been left with some very unwanted thoughts and feelings and no longer wanting to live in her community:

> *I want to move. If the rent crisis wasn't as bad as it is, I wouldn't be there. I don't want to be there because of the risk of another fire and because of the community after the fire. They are just not the same. It's now very cliquey, it's like they don't trust anyone anymore. I felt like I fitted in before the fire and now I feel the community is divided. After the fire it's like the cliquey group became the nice group and the nice group became the cliquey group. It's like they kind of did the swap over. Things have definitely changed since the fire and not for the better. Participant 1.*

In addition to feeling like the community was divided after the fire, Participant 1 also felt personally targeted by some of her neighbours and was left financially devastated as a result:

> *My fences are broken down, they burnt cause of the fires. My pony got out, my goats got out and instead of being a nice neighbour, she's gone and reported me to the Shire, and I've been looking at going to court for fines of having the pony out and the three goats being able to get out. Now it's two years on and I don't have the finances. I went into absolute debt trying to replace everything that I lost in the fire, the shelters, and I've recently lost, some of my animals to the RSPCA for not having shelters because they were lost in the fires. Participant 1.*

Participant 1 still feels she is really struggling financially, mentally, and continues to feel isolated in her community. Overall, she feels very different to how she did before the fires, and is grappling with a new reality that feels difficult, unfamiliar, and hard for her to navigate.

Participant 5 felt stronger and well supported by her community after her experience with the tornado. In fact, she stated that she felt so well supported that she felt embarrassed:

> *Uh, yeah, we did feel very supported. It's a very supporting community, but I was also embarrassed, I'm like not somebody that likes to accept help easily. Neither one of us is. So, it was quite, well, we felt like there were people that were way worse off than we were. You know, we at least had family members to go stay with. You know, we didn't lose absolutely everything. We are all very much for each other, we all help. I mean, if somebody has an accident happen on, on their property or what have you, we are all there. We all help. I think*

the whole experience, I think if anything it's made us stronger, more vigilant and more prepared. Participant 5.

However, despite feeling like she had grown stronger and more connected to her community, Participant 5 was disappointed by the local government's support response after the disaster and believes more should have been done to help the affected community members. This sentiment was felt by several of the participants:

I don't feel that the Shire is very responsible to do anything for anyone. I don't have a lot of nice things to say about the Shire. I know resources were stretched but even the next day, you know, I, I would've thought they could've, the Shire could have maybe sent someone out to help get all the tin off the road, you know, the roof. But we did that ourselves. Nobody turned up to help. Also, at the start a better warning system is needed down there, like a great big bloody bullhorn, like in Asia, so everyone can hear it and go okay, oh god, it's time to go. Participant 5.

Participant 2 was impacted by the fires, as mentioned in earlier chapters, in the same local shire as Participant 5 was impacted by the tornado, and Participant 2, although feeling well supported by her community, also did not feel supported by her local government:

It certainly brought this community together. The community was so good at supporting us, who had lost everything, all, most of us, most things, you know, I kept getting things, I got a lot of donations. I got a lot of clothes given to me. Anything. People just said, look, if it's anything you want, just ask. And so, I put a post on Facebook and things that are right on my doorstep. So, I accumulated things very easily in that way, you know, the physical things. People were extremely generous. They really were, and they really wanted to help. I mean, that is the most moving thing about the whole thing. That's it. That's thing that really brings a tear to my eyes. It was the community members. There were no government agencies helping. We found that very difficult. We found it very difficult to get in touch with any government, the shire wasn't prepared, they hadn't gone through anything like this before. Also, because we weren't classified as a big enough disaster, we weren't eligible for any government payouts and I think that's a bit unfair, just because it wasn't big enough and didn't affect enough people. I felt very disappointed with government agencies. Participant 2.

Participant 8 also felt different in the *long haul* moment through a sense of growth and a greater sense of belonging to his community:

It's been an amazing journey of sort of self-growth since then. And we were very lucky we had a great place that we could sort of try and recuperate for two years while we were renting.

So, we *were recuperating there and I was like doing whatever I possibly could as much for myself. I made a little video just focusing on the fact that no matter what shit happens, we are in Australia and better off than 99 per cent of all of human history. But for me it's like, I've seen it all now what else can you, what else can you do? Throw it at me, whatever you know, I would never leave now, like we did consider this place being defendable or defensible, whatever the word is. We have taken extra precautions and I'm not scared of it anymore. It's like, you've done your worst, what else can you do. We made so many friends. That's another massive silver lining. Um, not just, uh, from the community cos obviously they all came together, but more the um, sort of government and NGO etc. Like the response, was fantastic, but we've also made friends and contacts and, you know, we so many different people. I really don't imagine how it could be any better. I'd say there's far, much, far greater good that's come out of it than shit, I really do. Participant 8.*

Participant 11 feels different as a result of the lessons she learnt from the fire. Not only does she feel more confident in herself and being prepared for a fire and having to evacuate, but she also feels more confident in being able to assist other people:

I now feel more confident. If something happens, I can think in my mind I need to do this and then I can think. Because what happens is, even though you're thinking of you, you need to grab things and grab the car and go, you'll come across other people, who aren't like your neighbours, other people, and you've got to try and help them at the same time. So as long as you know are sorted, with your kids and your animals and you are prepared to go, you're able to have the capacity mentally to help someone else as well. I now just feel more prepared, and I know what's more, what's valuable and what's not. Participant 11.

Participant 12 felt his community worked well to support each other after the fire; however, he also recognised that everyone felt differently depending on their own individual experience of the fire. While acknowledging a strong community spirit, he also felt that each person was very much on their own in terms of their psychological recovery:

I think the community response was a good response following the fire. The one thing it's hard to understand is everybody's affected differently and to the person who lost their house compared to the person who just lost their fence, but they both went through the same incident, and you can't say that they're not affected differently. Even though one's lost the house, the other one had a terrible time that night or whatever, still got the house, but it's still affected by this thing. I think they pulled together pretty well. Across the area there was definitely a good response. And then the government agencies that stepped in as well, was good support there. I think you're still dealing with it on your own as much as the helps there. You're still on your own, it's in your head sort of thing. Participant 12.

Participant 13 also felt that his community pulled together well, and he felt more connected to his community through all the help and support that was offered:

> *Yeah, absolutely, everyone pulled together and helped out and borrowed things, and some farmers have different machines and one bloke had a crane and he comes through and helped pull gear off sheds. But there were machines stuck in sheds that couldn't get out. So, a lot of crew banded together to try and get people going. There was really good community spirit around I think. Participant 13.*

In conclusion, this chapter has focused on the final theme emerging from the data and has been called, *my new sense of self*. Within this major theme, three sub-themes were found: *lessons learnt*, *ongoing psychological impact*, and *I feel different.* This final theme, with its associated sub-themes, has both positive and negative implications. On the positive side, many of the participants felt they had grown stronger within themselves from their experience of the disaster, that their community had been strengthened and become more resilient, and that they had a stronger sense of belonging to their community.

On the negative side, some people felt stuck and did not feel closer to their community, or supported by the authorities that would typically support a community after a disaster. Furthermore, many of the participants experienced very unwanted, negative psychological symptoms as a result of the decisions they made and the actions they took in the disaster, and continued to have ongoing negative psychological symptomology long after the disaster had subsided.

Understanding the complexity and nuances of participants' individual and collective shared lived experiences of disaster is crucial for developing more effective mental health interventions, promoting long-term recovery, and ensuring that disaster response strategies are holistic and inclusive of both physical and psychological needs to minimise harm and reduce long-term mental health implications. The final two chapters draw the study together, providing a summary of the study from beginning to end, concluding comments and a discussion, as well as considering implications for practice and future research.

CHAPTER EIGHT
DISCUSSION

The phenomenon

Over the last four chapters of this study, the participants' personal and unique experiences in a range of disasters have been explored. In presenting and exploring the participants' lived experiences, I have been able to share what the individual psychological impact has been for each of them from their experiences of disaster and, at the same time, reveal and describe the phenomenon of living through, and making personal decisions during, a disaster event.

The study found that the experience of making decisions was characterised by specific and distinct moments of time, which have been referred to in this study as:

1. The Prelude – (before the disaster actually struck, typically after emergency advice warnings had been issued)

2. The Crisis – (during the disaster, the disaster had struck, and participants were in the midst of the event)

3. The Aftermath – (after the disaster had subsided, typically weeks to months afterwards)

4. The Long Haul – (year/s after the disaster event)

Furthermore, the study identified four key themes arising from the data: Making sense of my world; making sense of my decisions, my sense of regret, guilt and anger; and my new sense of self. Of note, the participants' stories included strong and lasting emotional responses, which for many included loss, guilt, and regret. In summary, the following findings were revealed:

- participants found their experience started well before the actual impact of the disaster struck
- the participants' experience in the disaster was long-lasting and characterised by chaos and confusion
- together with the chaos and confusion experienced, the urgent decision-making that was required was often fraught with uncertainty and feelings of helplessness

- the *aftermath* was characterised by a sense of surprise about the decisions the participants' made and what had happened, and there was a drive to make sense of these decisions, even more so after the disaster has passed
- there was a lasting sense of loss of ontological security
- there was also a drive to look back and review what had happened, and a sense of regret, guilt, and anger that were companions throughout the experience

This study has provided new knowledge about what it was like for community members who made personal decisions and took actions during a disaster. The study has enabled new perspectives to be revealed, which allows for a deeper understanding to be developed about what it was actually like for people during this time. The study has revealed and described the phenomenon shared by most of the participants, and those who experienced this phenomenon largely experienced it in similar ways. This suggests a commonality in the experience, meaning that while individual nuances may exist, the shared aspects of the phenomenon manifested in consistent patterns across the participants.

This phenomenon comprised many different aspects of people's experience in the disaster, commencing with the reality that all the participants found their experience started well before the impact of the disaster struck, defined in this study as the prelude. For the most part, the participants' experiences in the disaster were long-lasting and characterised by chaos and confusion, especially in the early stages, which was in part fuelled by their preconceived understandings (or misunderstandings) about what could happen. The participants grappled with anticipation, fear, and their own expectations which caused much confusion at a time when important decisions had to be made. The chaos and confusion experienced together with the urgent decision-making that was required was often fraught with uncertainty and feelings of helplessness.

The study revealed there was a drive to make sense of the decisions the participants' made, even more so after the disaster has passed and there was a lasting loss of their sense of ontological security. The notion of 'ontological security' reflected the deep-seated need for stability and predictability, which participants felt had been shattered in the disaster, with many continuing to feel the ongoing implications of this, years after the disaster had subsided. As well, there was a drive to look back and review what had happened and a sense of regret, guilt, and anger that were companions throughout the experience. The idea that individuals experience changes and growth in the aftermath of traumatic events, while simultaneously grappling with loss and the need to redefine their future, reflects a complex

interplay of emotions and psychological processes. Individuals are often forced to reconsider not only their circumstances, but also their identity and sense of self.

Overall, this phenomenon illustrates the profound and lasting effects of disaster on individuals and their communities, highlighting the interplay of emotions, decisions, and the quest for meaning in the aftermath. The phenomenon captured the complex emotional and psychological journey people underwent during and after a disaster.

This knowledge can assist with tailoring psychological interventions for people who will face similar situations in future disasters to improve mental health outcomes and recovery. In addition, information gained from this study could be used to guide future disaster response and planning via the development of strategies to assist individuals with making informed decisions under pressure, which could potentially reduce psychological distress in real-time. Results of this study can contribute towards future planning to achieve more positive outcomes and lessen the negative psychological impact on people affected by decision-making in disasters.

The remainder of this chapter provides an interpretation and discussion of the important aspects and consequences of this investigation from the gathered information, the initial contemplations and curiosity that led to the research question, the literature review and methodology, through to theme identification and interpretation and the final analysis. In the final chapter (Chapter Nine), recommendations for future activities, including potential further research are provided.

Recap of the study so far

The aim of this research was to gather rich data via in-depth interviews to investigate the lived experience of the phenomenon and explore the longer-term psychological impacts on a person who made decisions and took actions during a disaster. The main drivers for this research were identified as the changing and worsening risk picture and the unwanted negative psychological impacts on people who have experienced a disaster.

As part of this study, a review of the literature was conducted, as discussed in Chapter Two. The literature review revealed that considerable research has been conducted on the mental wellbeing of people after they had experienced a disaster, along with a plethora of research on the changing global risk picture and climate change. However, there was a scarcity of

literature that examined the psychological impact on people that may result as a consequence of the decisions they made in the lead-up to, and during, the disaster.

This study is important, because as mentioned in Chapter One, understanding the mental health impacts of decisions made during disasters is crucial for improving future responses and minimising harm. By studying how making decisions during disasters affects ongoing mental wellbeing, this study can identify patterns and develop strategies to better support individuals in similar future situations. This knowledge can inform preparedness efforts, response protocols, and post-disaster interventions, ultimately helping to mitigate the negative psychological effects of disasters on affected populations.

The methodology chosen for this study was a hermeneutic phenomenological approach, along with in-depth interviews as the data collection method. Thematic analysis was the approach used to analyse the data so that each person's unique lived experience could be heard, and then secondly, considering the data allowed me to isolate themes that came up collectively and repeatedly for the participants.

The research method, including the data collection and analysis, was guided by van Manen's (2018) six research activities and four life world existentials, as described in Chapter Three. In-depth interviews were undertaken with 15 people, with all participants being over the age of 18, residing in Australia, and who had personally experienced a disaster within the last 10 years.

As part of a hermeneutic phenomenology approach, Willig (2019) suggested that two key concepts of knowledge, known as ontology and epistemology, need to be correctly identified and understood, because the researcher's own ontological and epistemological assumptions could inadvertently inform and affect the research questions they are asking and the methodological choices they make if these concepts are not properly considered.

When I reflected on the ontology and epistemology in relation to my role as a researcher in this study, I considered my work as a psychologist working with people with trauma, particularly those with post-traumatic stress disorder, and also my work as a volunteer conducting outreach with people after disaster events. I felt one of my personal assumptions about their experience was that they have must have inevitably suffered from significant levels of stress as a result of being in the disaster. This assumption may have affected my interpretation of the participants' accounts through my inadvertent reflection on their experience using reframing words such as, "that must have been very stressful for you",

rather than allowing them to describe their experience using their own words. Being aware of such personal biases ensured that I bracketed them out during the interview process.

This study was attempting to answer the broader questions of, ‘what was it like and what does the experience mean?” and “how does it affect your understanding of yourself?” The study explored the participants’ sense of ontological security and other feelings they experienced, such as regret, guilt, and anger. The study delved into the deep psychological and existential impact that a disaster has on an individual’s ontological security; in other words, their sense of feeling safe, grounded, and stable in the world during and after the disaster they experienced.

The epistemology that underpinned this current research study was concerned with understanding the participants and the meaning(s) behind their experiences, and how this knowledge was created during the research process and then linked to the already existing knowledge on the subject matter. The literature review highlighted and clarified the knowledge that already existed, and because the review continued throughout the study, any new information published was also accessed and considered.

In this study, participants made critical and unexpected decisions about some sort of action or inaction during a disaster, and they would typically have formed perceptions towards, and opinions on, the evolving situation and then made their own interpretations. These perceptions may have been affected by the individual’s prior experiences of disasters and by any prior knowledge they may have held. Although each participant’s perceptions were unique and subjective, along with their own personal interpretation of the situation, this study sought to uncover the phenomenon by examining the lived experience that applied to most people most of the time. The onus then fell to the researcher to gather and interpret the data accurately to enable meaningful conclusions to be drawn.

Summary of the existing literature and how it applies to this study

This study revealed that in the *prelude* moment of time, the two common themes that emerged were, firstly, that most of the participants felt confused and did not feel safe anymore, and secondly, many participants felt helpless after they heard emergency advice warnings or saw physical signs of an emerging disaster, such as smoke from a fire. Subsequently, in the *crisis* moment of time, many participants made decisions and took actions that surprised themselves in hindsight and left them wondering why they made those decisions. The decisions they made and the actions they took led to strong emotions which

were discussed in detail in the third theme called*: my sense of regret, guilt, and anger*" that emerged.

As discussed in Chapters One and Two, a vast existing literature was found and explored regarding the impact of emergency advice warnings, including how they are administered, how they might be perceived by the individual, and how the brain and body responds to a perceived threat. It was suggested that people might process information differently in a crisis situation, and that they might try to simplify messages to make them more palatable. When people are in stressful situations, they may feel there is an information overload, and therefore, feel overwhelmed and may not hear all of the intended message due to juggling too many factors in a crisis. They might also not remember the content (USHHS, 2019).

The WHO (2022) elaborated on the notion that information overload often occurs in a disaster and highlighted the increasing and concerning trend of too much information, including false or misleading information, both digitally and physically being provided in a disaster. The WHO (2022) referred to this phenomenon as an 'infodemic', and that it can cause confusion and risk-taking behaviours that can harm health and make individual decision-making even more difficult.

In the current study, as reported in Chapter Four, many of the participants found there was too much conflicting information included in the emergency advice warnings. Moreover, when this advice was coupled with seeing or smelling physical signs of the disaster, such as smoke from a fire, the emergency advice warnings they were hearing often served to confuse them more, and frequently left them feeling helpless.

The following summary of what participants reported they felt in the *prelude* moment of time provides evidence that suggests most of the participants felt more confused and conflicted by the emergency advice warnings than helped by them. A few of the participants did not receive any emergency advice warnings for reasons already explained in previous chapters, and it was only these few participants who did not report feeling confused or conflicted by the warnings.

Participant 1 felt there were too many emergency advice warnings despite seeing smoke from the worsening fire. Participant 1 felt stressed and confused by the number of warnings as she was trying to focus on preparing to evacuate. She stated that her phone delivering the emergency advice warnings distracted her from the task of packing up her animals and preparing care for the ones she was leaving behind.

Participant 8 felt that the emergency advice warnings he was being given were incorrect, because the physical signs of the fire that he could see did not match the warnings he was being given. This resulted in confusion and feeling conflicted, resulting in him ignoring the emergency advice warnings suggesting he did not yet need to evacuate, but he evacuated anyway.

Participant 13 also felt that the emergency advice warnings were confusing and not keeping pace with the physical signs of the worsening cyclone that was coming. The warnings suggested that residents tie down and pack things away, but stay put. He did not feel safe with this advice and instructed his workers residing on one of his properties to evacuate and get out quickly. Participant 13 and his family did not evacuate the family home and heeded the emergency warnings but then felt panicked. Other strong emotions also emerged, such as regret as a result of his decision to stay in the family home. He felt a sense of regret about his decision to stay in the family home with his parents and not go to their house, which in hindsight, he believed was probably a safer option.

Participant 15 also felt confused and conflicted because he did not feel the emergency advice warnings were keeping pace with the rapidly changing and intensifying fires that he could physically see. This ultimately led to Participant 15 disregarding the emergency advice warnings on two separate occasions throughout his ordeal in the disaster. In hindsight, and on reflection in the *aftermath* and *long haul* moments, he was left quite shocked at the decisions he had made and the subsequent actions he took as a result of the emergency advice warnings combined with the physical signs of the fire he could see and his confusion about the situation he was in. The decisions and actions Participant 15 took in the disaster led to feelings of regret, guilt, and anger about his decisions.

Participant 12 felt overwhelmed and confused with information overload from the emergency advice warnings, and also felt they were not updated in a timely manner and did not keep pace with what he could physically see around him with the smoke and flames from the fire. In his confused state, Participant 12 made the decision to go against the warning advice, and in hindsight in the *aftermath* and *long haul* moments, Participant 12 was also left questioning the sense of his decisions and actions at the time which led to him experiencing feelings of regret, guilt, and anger about his decisions.

Participant 9 found she did not know whether to trust the emergency advice warnings due to the chaos on the roads, the physical signs of the fire worsening, and the confusing nature

of too many emergency warnings that resulted in her sense of panic. Participant 9's landline and mobile phone kept alerting her with emergency advice warnings, and she felt the situation was "ridiculous" with the amount of calls on her phone, and she reported that all it did was heighten her anxiety levels. In the end, she went against the warnings, and instead of 'wait and see' as per the advice warnings, she collected her daughter from home and headed directly towards the path of the fire.

Participant 11 received her emergency advice warnings in person by DFES who knocked on her door while they were actively working in the area and advised her to stay home unless they told her otherwise. She did not feel safe with this advice because she was at the top of the hill and could see the fire flanking towards her at a rapid speed. Participant 11 felt the advice to stay was incorrect because ultimately, she and her neighbours had to be escorted down the hill behind a fire truck which was putting out flames as they drove.

Participant 3 also felt the emergency advice warnings in the cyclone were confusing, not only for herself, but also for the community as a whole, because people had different levels of access to the information that did not filter through to everybody, and because of her line of work, she was receiving different information to what others were receiving.

While receiving and hearing conflicting information about a fire burning in the town, Participant 5's home was struck by a tornado, for which they received no warnings, and was therefore left feeling shocked and confused.

As reported in earlier chapters, the confusion and feeling conflicted from the emergency advice warnings and sensing the physical signs of the fire, were not only because there was too much information. Many of the participants found the opposite of too much information and believed there was not enough information or that it was too slow or unreliable to keep pace with the rapidly changing conditions. This resulted in even more difficulties in making decisions because the supposedly trusted sources of information either were not saying enough or explaining it in a way that the participants could rely on to make choices about what actions to take.

With these findings, many of the participants felt more confused and hindered by emergency advice warnings than they felt helped. It is useful to examine what the literature says about this and whether other similar studies have found similar trends. With regards to people feeling confused as a result of too many emergency advice warnings, as mentioned in Chapter Two of this study, organisations including the WHO (2022) are attempting to

address what they call an ‘Infodemic’ which, as they suggest, can lead to confusion and risk-taking behaviours that can harm health and create distrust in the authorities. These findings are in line with what many of the participants found in this study, and that in the *prelude* moment of time, the participants felt a sense of chaos and confusion while the official and other information being disseminated only added to the confusion.

The WHO (2022) acknowledges that with growing digitalisation, information spreads more rapidly which helps to quickly fill information voids; however, it can also amplify harmful messages. One of the strategies being used by the WHO (2022) to combat the ‘Infodemic’ is working collaboratively with partners across society to “bolster digital capabilities and leverage social inoculation principles to foster higher digital and health literacy, build resilience to misinformation, and deliver innovative ways to reach communities with reliable health information” (WHO, 2022, p. 3).

As mentioned in the earlier chapters of this study, the Lancet (2020) reported that, “The US Centers for Disease Control and Prevention has employed a global team of behavioural scientists and communicators to tackle Infodemics as they relate to vaccine acceptance in low-income and middle-income countries”. They also report that several social media platforms have increased their efforts to remove misinformation and lead users to more trustworthy sources. Lancet (2020) reports that the key to Infodemics is “not to produce even more information, but to address the environmental and social factors that make spreading misinformation easy”. For example, efforts could be made to improve education, foster critical thinking, and build people’s trust in reliable sources to create a more informed public and reduce the impact of misinformation. Misinformation can lead to feelings of regret when people later realise that the decisions they made in a disaster were shaped by misinformation, or that the information they were given was flawed or potentially manipulated.

A meta-analysis was conducted by Walter and Tukachinsky (2020) examining 32 studies with a total of 6,527 participants, and found that on average, while correction does not entirely eliminate the effects of misinformation, corrective messages were found to be more successful when they are coherent, consistent with the audience’s worldview, and delivered by the source of the misinformation itself. Furthermore, the study by Walter and Tukachinsky (2020) revealed that corrections are less effective if the misinformation has been attributed to a credible source, has been repeated multiple times prior to correction, or when there is a time lag between the delivery of the misinformation and the correction.

Debunking and pre-bunking misinformation are crucial strategies for combating false information and maintaining public trust. One such method that has been used is known as a ‘truth sandwich’ which involves structuring information to first present the true facts, then addressing the false claim, and finally restating the accurate information. The goal is to sandwich the misinformation between correct facts to reinforce the truth (Tulin, et al., 2024). The study by Tulin et al. (2024) involved 752 participants and found that although the truth sandwich was not effective in correcting false beliefs, it had indirect benefits such as people receiving the information more positively due to a perception that the intention of the information provider was to inform rather than to manipulate or spread lies. Tulin et al. (2024) also found that people who had been exposed to a truth sandwich showed the least resistance towards reading subsequent fact checks.

The collaborative efforts of authorities such as the WHO, various levels of government, the DFES, and other Australian emergency management agencies during disasters, along with some of the strategies that have been discussed throughout this study to reduce misinformation could be strategically employed to achieve desired outcomes, such as people being able to rely more on emergency advice warnings and make informed decisions about evacuating without feeling confused and hindered by them. This is important to consider for future disaster planning.

The flow-on effect resulting from the confusion participants felt between the emergency advice warnings and the physical signs of the disaster, or the fact that they did not receive the emergency advice warnings, meant that many of the participants made decisions about evacuating while relying on other factors in their decision-making process. Some of the factors people rely on in a disaster to make decisions, other than emergency advice warnings, have been highlighted by Perry and Green (2007), Gantt and Gantt (2012), and Gurtner and Parison (2021), including the feeling of responsibility in caring for other family members and pets, a person’s previous disaster experience, available resources, and the effect of what other people are doing in the disaster; for example, the bystander effect and other theories about how people respond to the influence of other people in the vicinity. In this study, several of the participants based their decisions on the care of the animals at their residence.

Most people in this study ultimately made decisions and took actions that were based on the physical signs of the disaster and the threat they could see, rather than relying on emergency advice warnings. Some of these participants did comply with the emergency advice

warnings while others chose to disregard them, as discussed in Chapters Four and Five. Regardless of the level of compliance with the warnings, most of the participants reported that the danger signs or physical threat they could see or hear, influenced their decision more, regardless of what the warnings had advised them to do. This was because, as has been highlighted, most of the participants found the warnings confusing due to information overload, and the information frequently conflicted with what they could physically see. Furthermore, the participants generally felt the information messages hindered them more than helped them in their ability to make decisions about which actions to take.

In addition to the impact of emergency advice warnings and the physical signs of the threat, the human body's physiological response and the brain's psychological response when faced with a threat (which were was also discussed in earlier chapters of this study), also affect how a person may react in a disaster. When a combination of these factors is at play, people may feel overwhelmed, confused, and possibly paralysed or 'frozen', and the resulting decisions they make may be comprised and not well thought out. This scenario was elaborated on in Chapter Five, and identified as the second theme found: *making sense of* my *decisions.* Many of the participants questioned the decisions they made at the time and were even surprised by their decisions and actions, as described under the sub-theme, *what was I thinking*.

Six of the participants made decisions which led to them taking actions in the disaster which they later questioned in terms of the logic and sense of their decisions and why they took the actions they did. Aside from the information overload and confusing emergency advice warnings that frequently seemed to conflict with the physical signs of the disaster that participants could see, several other theories were suggested in Chapter Two as part of the literature review. These theories provide more insight that may explain what may have contributed to the surprising decisions participants made in the *crisis* moment of time.

Seeger and Sellnow (2016) theorised that when the individual finds themselves confronted and in the face of a crisis, they can experience a momentary loss or lapse of reason, like a type of paralysis, and may be temporarily unable to make a decision because of an inability to make sense of what is happening. The six participants in this study that were surprised by their decisions experienced more of a momentary lapse of reason rather than a paralysis of action.

Impact of cognitive biases on decision-making

The effect of a cognitive bias known as *action bias* was described by UNDRR (2022) in Chapter Two, explained as the tendency to believe that action, rather than restraint, can solve problems. In this study, according to this theory of *action bias*, it is possible that Participant 12 may have acted impulsively and left his farm because he believed he needed to take some sort of action in the disaster. Similarly, Participant 9 drove closer to the path of the fire, endangering herself and her daughter because she felt she needed to actively do something, rather than just sitting and waiting.

Furthermore, another form of bias, known as *normalcy bias,* was described by UNDRR (2022) in Chapter Two. This is characterised as people doing something because they see others doing it. In this study, Participant 15 admitted that part of his decision to return home early despite the warnings not to (as his house was still in a live fire zone), was influenced by the actions of his neighbours. His neighbours all decided at the same time to return home early, and therefore, Participant 15 assumed it would be safe to also return home.

In Chapter Two of this study, the 6 core biases proposed by Meyer and Kunreuther (2017) were discussed. Meyer and Kunreuther (2017) offer several suggestions for future disaster planning to address these biases and mitigate risk. They believe a more enlightened approach would be to assess the biases that affect people and the potential for people to behave irrationally, referring to this process as a ‘behavioural risk audit’. This approach recognises that people often do not act rationally, especially under stress or in unfamiliar situations. Meyer and Kunreuther (2017) suggest that disaster managers should employ choice architecture, or what is known as ‘nudging’, to guide individuals towards safer behaviours. For example, placing prominent signage about the dangers of driving through floodwaters, near rising floodwaters, or creating easy access to emergency resources, can help individuals make better choices without feeling coerced.

Another strategy suggested by Meyer and Kunreuther (2017) to mitigate against *myopia bias* was to reduce the time horizon. In other words, people are more likely to consider risk reduction measures if they are told that over the next 25 years, there is a greater than 1 in 5 chance of having at least one disaster that causes damage to their property, instead of describing it as a 1 in 100 year probability. This strategy may have been useful in relation to a recent disaster in Western Australia, as described in the following section.

Callaghan (2024) describes recent events that occurred in the town of Bunbury in the south of Western Australia, where a tornado struck the town in May 2024, damaging 200 homes, destroying none, and sending a lot of asbestos across the suburbs. The tornado left a 60-metre-wide path of damage and debris with winds estimated at 160 kilometres per hour. Callaghan (2024) states that it was described as a ‘freak event’. However, just three weeks later, Bunbury was hit again by a ‘downburst’, when two thunderstorm cells merged over the town and high winds left a 300-metre swathe of destruction, destroying 2 homes and 8 businesses, and causing further chaos for residents still trying to clean up after the first disaster. Callaghan (2024, p. 31) stated that “wild storms, flash flooding, one-in-100-year events. If it feels like the weather is crazy, that is, because it is and it will only get crazier as climate change makes these events more extreme”.

Callaghan (2024) proposes several ideas to mitigate against these predicted negative impacts, including the need for governments to act to provide more investment in community resilience, including measures to protect homes and properties from disasters. In addition, Callaghan (2024) suggests that the costs of inaction of preparing and planning for disasters by residents needs to be made clearer to people, and that the population in general needs to be better informed about what the weather could potentially look like in the future. Similar to Meyer and Kunreuther’s (2017) suggestion, the timelines being reported need to be in a timeframe where people are more likely to act sooner, rather than delaying preparedness and resilience actions because they believe it probably will not happen to them in their lifetime.

Witte and Allen (2000) highlight the effectiveness of using fear appeals in communication strategies to counteract *optimism bias*, particularly in the context of disaster preparedness. However, their findings suggest that simply instilling fear is not enough; it must be paired with messages that also promote a sense of efficacy and agency. Witte and Allen (2000) recommend negative framing should be accompanied by communication that supports a sense of agency, hope, motivation, self- and collective efficacy, and importantly, practical steps required for change. Overall, Witte and Allen's (2000) recommendations underscore the importance of a balanced approach in disaster communication, combining negative framing with empowering messages to inspire meaningful action and improve preparedness.

In summary, when it comes to disaster risk planning on an organisational level, Meyer and Kunreuther (2017) highlight the concept of ‘thinking slow’, whereby understanding how individuals and key decision-makers behave in relation to potential disasters is crucial for

developing the effective actions needed to accelerate risk reduction, and to use more deliberative thinking; in other words, despite the urgency of increasing extreme events, planners would benefit from thinking slowly and more deliberately.

Effective decision-making on an individual level

On an individual decision-making level, Huder (2012) describes a three-question system that he suggests people should train themselves to ask in a disaster when a decision has to be made. He suggests asking oneself:

- What have you got?
- What do you need to do?
- What do you need to do it?

Interestingly, in this current study, Participant 14 appeared to have been the only participant who was able to ask herself these questions and plan her evacuation. However, this is more than likely because she had ample time to plan for the slow and steady rising floodwaters. She had plenty of warning in the lead-up to the flood and was able to make well thought-out plans without realising the thought process she had gone through, as Huder (2012) described; she worked out that she needed to find a suitable home for her dog as the temporary place she was staying in was not suitable for an animal. However, even though she had made well thought-out decisions and plans, this did not protect her from unwanted feelings of regret and guilt, as described in Chapter Six.

In addition to the surprise many of the participants found with the decisions they made in the disaster, the findings showed that many participants were left with significant unwanted consequences and negative emotions. These were highlighted in Chapter Six under the theme of: *my sense of regret, guilt, and anger.* For the majority of the participants, one of these emotions was *regret,* which was closely linked to feelings of complacency, that is, that they were not better prepared or did not take enough preventative action in the lead-up to the disaster because they had been too complacent.

It would appear after analysing the findings, the phenomenon shared by most of the participants was they felt remiss in taking adequate preventative actions and/or preparation before the disaster, as influenced by either myopia, optimism, or inertia or a combination of these. Many believed that the losses incurred were unlikely to happen to them, or they were

uncertain whether the disaster would impact them in a negative way, so they maintained the status quo.

A recent study by Ommer et al. (2024) produced similar findings when they interviewed 438 participants with lived experience of the floods in Germany in July 2021. The floods took hundreds of citizens by surprise because they did not receive warnings, or people did not take the warnings seriously. The citizens who did not expect the flooding did not have time to prepare, and therefore, felt overwhelmed when the floodwaters entered their homes. The lack of preparedness together with people taking risky actions such as driving through flood water or going downstairs into flooded basements caused a high number of lives to be lost. The study found that many German citizens had a reactive or defensive mindset rather than a proactive one.

Ommer et al. (2024) concluded that rare events like the German floods are deeply uncertain, and therefore, need to be adapted to in advance rather than taking action only after a warning (which sometimes may not arrive). A proactive mindset is a crucial component of effective decision-making, especially in the context of disasters. When faced with emergencies, such as natural disasters, individuals who adopt a proactive approach are often better equipped to manage the situation rationally and efficiently. This mindset can counteract the reflexive, irrational, or panicked decisions that can occur when stress and fear take over in the heat of the moment.

Ommer et al. (2024) surmised that to enable good decision-making on preparedness actions, time is needed to evaluate the potential impact of actions taken to ensure that people will not regret them in the future. This is consistent with the recommendations of the Sendai Framework (United Nations Office for Disaster Risk Reduction, 2015), in that proactive disaster preparedness should target the strengthening of knowledge and capabilities “to effectively anticipate, respond to and recover from the impacts”.

Ommer et al. (2024) also found that the participants in their study identified a range of regrets about their preparedness behaviour, especially about the actions they did not take – their inaction. Regret was expressed in terms of what they would do differently if another flood were to happen in the future. The study showed that the participants evaluated their actions and inactions and thought about what they could have done differently. Furthermore, Ommer et al. (2024) concluded that short-term emergency measures are valuable, but long-term preparedness is more important. The residents involved in the floods regretted their inaction

because they failed to do things they could have done, but there was not enough time in the end. In addition, Ommer et al. (2024) suggest that the actions of individuals need to create a feeling of awareness, responsibility, and independence, rather than relying on authorities to help them, because people's trust and dependence on the authorities to manage the flooding caused great regret when expectations were not met.

The final conclusion that Ommer et al. (2024) found in their study was similar to the fourth theme found in this current study, and the sub-theme of, *I feel different*. Here, many actions that people took in advance of the flooding were focused on helping others in various situations, and people did not regret this even if their own life was at risk. This finding acknowledges the importance of supporting family, friends, neighbours, and even unfamiliar people. In response to this finding, individual long-term preparedness could be enhanced by focusing on collective action. Participants from the flood study in Germany now aim to be more proactive by taking measures in advance and being more attentive to their environment to detect changes and avoid surprises in the future.

Furthermore, this current study produced somewhat similar findings to that of Ommer et al. (2024), whereby some of the participants did not take the warnings seriously, while others did not have enough time to prepare properly and therefore felt overwhelmed when the disaster struck. The lack of preparedness, together with people taking risky actions, resulted in unwanted consequences and the collective shared lived experience of participants was that they had a reactive or a defensive mindset, rather than a proactive one. In addition, and similarly to Ommer et al. (2024), the participants in this study expressed regret about their lack of preparedness behaviour, especially about the actions they did not take – their inaction. Regret was expressed in terms of what they would do differently if another disaster were to occur in the future.

As mentioned earlier, Ommer et al. (2024) concluded that short-term emergency measures are valuable, but long-term preparedness is more important. This current study differed from this viewpoint slightly, in that some disasters are not foreseen or able to be predicted; for example, the tornado that struck Participant 5 without warning when she was actually preparing for and expecting a fire. Therefore, preparedness is important, but not always possible if there are no warnings for the disaster, and therefore, a combination of short-term emergency measures and preparedness as much as one can be prepared, is preferable.

This study found, and concurs with Ommer et al's (2024) findings, that individuals' actions need to create a feeling of awareness, responsibility, and independence, rather than relying on the authorities to help them, because the authorities cannot always be relied on in a timely fashion in a disaster or emergency event.

Hypervigilance and loss of ontological security

In addition to the unwanted, negative feelings of *regret, guilt,* and *anger,* the participants' shared lived experience included a *loss of ontological security* (as described in Chapter Five) and an ongoing sense of hypervigilance. The hypervigilance that participants felt was described under the *ongoing psychological impact* and *I feel different* sections of Chapter Seven. Other studies have produced similar findings; for example, Haney and Gray-Scholz (2020) conducted a study with 40 residents affected by floods in Southern Alberta in 2013 and found that, after returning home post-disaster, many residents experienced prolonged disruption to their sense of ontological security, primarily because they found the changed landscape was a constant reminder of the trauma they experienced during the floods. Furthermore, Haney and Gray-Scholz's (2020) findings indicated that women and people with stronger emotional and social ties to their neighbourhoods were most likely to experience disrupted ontological security, particularly if there was ongoing reconstruction that prevented them from establishing a 'new normal'.

In this current study, mixed results were produced with some being similar to Haney and Gray-Scholz's (2020) research and some different. Several participants in this study experienced a deep, long-lasting loss of their sense of ontological security, and many participants felt they were still in limbo years after the disaster, not knowing whether they should rebuild on the same land or relocate elsewhere in the community, or to a different community altogether, because their burnt block of land that once contained their house was a constant reminder of their loss and trauma. Other participants in this study were not so affected by the reminder of their lost home and wanted to rebuild as quickly as possible, as that was where their family history was.

Warner (2021) examined the impact on people affected by a fireworks explosion in the Netherlands in 2000. The disaster killed 23 people including 4 firefighters, injured 947 people, and approximately 10,000 people were evacuated, with 1,500 out of 4,163 residents being permanently displaced as over 500 houses were destroyed or otherwise condemned. Warner's (2021) study found the residents' sense of ontological security was reduced, but

not completely destroyed. This finding is similar to Bondi's (2014) theory, whereby they suggested that a person's sense of ontological security resides on a continuum which moves, rather than being a binary distinction that locates and fixes on two discrete categories (ontological security and lack of ontological security). Both Warner (2021) and Bondi (2014) suggest referring to ontological security as a person having either a low or high degree of ontological security.

In this current study, participants' sense of ontological security occurred differently throughout the moments of time, and each of their experiences fits with the theory that the sense of ontological security is on a continuum, and that it changed depending on the moment of time they were in and seemed to vary, similar to Haney and Gray-Scholz's (2020) findings that people with stronger emotional and social ties to their neighbourhoods were most likely to experience disrupted ontological security, which was evident and discussed in the *I feel different* sub-theme.

Stenner and Kaposi (2021) used the COVID-19 pandemic to illustrate how the loss of ontological security impacted people on a global scale, describing the experience of the pandemic at the time as a 'suspension of normality'. The pandemic created a different type of threat that required unanticipated responses from around the world and many people had never experienced such a situation and found their sense of ontological security threatened. Stenner and Kaposi (2021) posed the question, "what will become of us psychologically?" when considering responses and solutions to the pandemic and specifically the lockdowns when a person's future they had once expected suddenly disappeared, and people were left facing a fear of the unknown and uncertainty about their future. Stenner and Kaposi (2021, p. 2) elaborated on this and hypothesised, "In each case, what we *expected* of our future just moments before, suddenly becomes the past (a past future) and yet the new present (the present present) is characterised by the fact that there is no new future to replace it (no present future)". In summary, what was an expectation about an immediate future is replaced with a new future that is hard for a person to imagine, and hence, expect.

In this current study, many of the participants lost their homes in the disaster and reported feeling 'stuck' at the time of the interview, and many had still not rebuilt or replaced their home for reasons outlined in previous chapters. Their sense of loss of ontological security remained in the *long haul* moment, long after the disaster had subsided. People felt a very real sense of uncertainty of not-knowing resulting from a past that had disappeared and was

discontinued without smoothly transitioning into a new expected future. Stenner and Kaposi (2021, p. 3) explain this situation by suggesting:

> Whilst the possibility of something new excites, the destruction of past certainties without reassurance of future continuity, and hence the distinct possibility of getting stuck, precipitates panic. This indeterminate mix of excitement and anxiety can manifest now as paralysis (i.e., melancholia where action feels impossible), and now as polarisation (i.e., mania where we feel compelled to act).

Along with a disrupted sense of ontological security, the shared lived experience of the participants also revealed another phenomenon, described in this study as a sense of hypervigilance, which became most apparent when considering potential future disasters. The DSM-5 (2013) states that hypervigilance is a key feature of post-traumatic stress disorder (PTSD), involving a heightened state of sensory sensitivity and alertness for potential threats. As mentioned in Chapters One and Two of this study, Bryant et al. (2021) suggested that exposure to natural disasters is a leading cause of post-traumatic stress disorder (PTSD) among Australians, with approximately 1 in 5 people suffering with PTSD, depression, and/or severe distress 10 years after the bushfire they studied. Keya et al. (2023) also found there were 5 main mental health illnesses that the people they surveyed experienced after they had lived experience of a disaster: generalised anxiety disorder (GAD), depression, substance use, adjustment disorder, and PTSD. North and Pfefferbaum (2013) found that exposure to a disaster is commonplace, and that one-third or more of individuals who have been severely exposed to a disaster may go on to develop PTSD or other mental health disorders.

At the time of writing this study, none of the participants had been formally diagnosed with PTSD, but many described similar symptomology. The majority of the participants described a type of hypervigilance combined with anxious symptomology that they had developed if they heard or saw any physical signs of another disaster. They explained that they found it hard to relax or be able to focus on their day-to-day living until they had satisfied themselves by reassurance that they were not in the path of another disaster. They tended to seek out this reassurance by continually checking and rechecking the conditions, the weather, the emergency advice warnings, or physically driving near to the physical signs of a potential disaster, to ascertain their proximity to the threat.

At this point, the psychological impact of decisions people made during the disaster has been summarised in terms of the loss of the sense of ontological security participants felt

during and after the disaster; the hypervigilance participants experienced after the disaster; the surprise participants felt about the decisions they made during the disaster; and the regret they felt in hindsight regarding the complacency and lack of planning and preparation actions they took before the disaster struck. A range of other unwanted negative emotions were also revealed during this study, and these are examined in more detail in the next section, along with what the current literature reveals. As was briefly discussed in Chapter One, Wilson et al. (2006) highlighted a psychopathology known as post-traumatic regret, guilt, and shame that may result in further unhelpful negative emotions such as anger, lower self-esteem and self-worth, anxiety, fear, and sadness. These unwanted emotions are central to the phenomenon, representing the shared lived experiences of the participants, even though these experiences occurred at different times during the disaster.

Before these emotions are discussed in more detail, it is important to discuss other factors that may have impacted the decisions participants made in the disaster. For example, it is important to consider the implications for people who have experienced more than one disaster and how this impacted their experience of future disasters. As mentioned earlier in this study, Leppold et al. (2022) found that exposure to multiple disasters worsened the negative impact on a person's mental and physical health and wellbeing, and that the potential risks of multiple disaster exposure far exceeded those of single disaster exposure. They also found that people with multiple exposures tended to become more complacent about emergency advice warnings and to disregard the advice, rather than adhering to the warnings. Leppold et al. (2022) also identified indirect negative public health implications of multiple disaster exposure related to worsening changes in public risk perception and trust in government responses to multiple disasters.

Similar to Leppold et al's (2022) findings, Participant 6 felt even more confused and alarmed at her panicked response to the fire, as she had wrongly assumed that with her previous experience of being involved in several fires, she would have managed the situation better. Several other participants also had previous lived experience of disasters, such as Participant 3 who believes she has PTSD and her negative unwanted feelings are so strong, she is trying to get medically signed off as being unfit for work. Participant 7 had also experienced multiple disasters and has ongoing feelings of anger, frustration, and depression in relation to the decisions he made and his experience of the fire. The shared lived experience of participants indicated that prior experience of a disaster did not necessarily reduce the psychological impact of future disasters.

Another consideration which may have influenced a person's decision-making and actions they took during a disaster, and the subsequent emotions they felt in hindsight afterwards, was explored earlier in relation to a study by Matarazzo et al. (2021) which examined the impact of a decision made through free choice rather than forced choice. Matarazzo et al. (2021) found that people who had to make a forced choice, regardless of whether that choice resulted in action or inaction, had more intense feelings of regret than those who made a free choice. In addition, they found that regret was always high when the outcome of the decision was perceived to be negative, regardless of the type of choice.

Matarazzo et al. (2021) also found that anger was a strong emotion that participants felt which arose from the self-attribution of a poor result and also resulted in self-blame for having made a wrong decision. Matarazzo et al. (2021) found that regret, disappointment, and anger towards the circumstances increased with forced choices while anger towards oneself increased with free choice. All the emotions of anger, regret, and disappointment increased with negative outcomes, despite the type of choice.

As discussed in Chapter Six of this study, many of the participants had feelings of regret, anger, and guilt. Most of the participants had to make forced choices, which is not unusual in disasters given the imminence and urgency of the threat. Most of the anger that participants felt was directed at themselves for the decisions they made, or the actions they failed to take, in the *prelude* and *crisis* moments of time. According to Lerner and Tiedens (2006), once a person's anger has been triggered, their perceptions, future decisions, and behaviour are impacted, regardless of whether the future decisions have anything to do with the original source of a person's anger. Furthermore, Lerner and Tiedens (2006) suggest that negative events, such as a disaster, that are accompanied by the belief that the self is responsible for the negative events, lead to feelings of guilt and shame rather than anger, and if people feel uncertain or lack confidence about the cause of negative events, they are likely to feel fear and anxiety rather than anger.

Lerner and Tiedens (2006) conclude that anger is a commonly occurring state that affects basic cognitive and social processes which, in turn, shape the decisions people make and the lives they lead. Anger can alter the way individuals perceive and interpret information, often leading to heightened sensitivity to perceived threats or injustices. This emotional state can impair judgement, as it reduces one's ability to evaluate situations objectively and results in reactive rather than well thought-out decisions. As Lerner and Tiedens (2006) point out, a person's emotional experience, and particularly, the appraisal they make of a situation,

such as an impending disaster, may hinder their ability to enter a situation with objectivity and rationality. This is important to consider for future disaster planning, because by incorporating an understanding of anger into disaster planning, a more effective, compassionate, and resilient emergency response strategy can be employed, improving outcomes for affected communities and helping to ensure a smoother recovery process.

The impact of how anger may affect future decision-making has been discussed, and it is now prudent to examine the effect of other emotions on decision-making, including regret and guilt. Zan (2024) describes a concept known as decision-making confidence, whereby when a person makes a decision they are uncertain about, they evaluate the correctness of their choice, which is referred to as decision-making confidence. A problem can occur when the outcome of a decision leads to counterfactual thinking when other possible outcomes are realised, which can lead to counterfactual emotions, including upward and downward counterfactual thinking, otherwise known as regret and relief. Zan (2024) described how upward counterfactual thinking involves imagining how an alternative decision should have been made which would have led to better outcomes, and hence, the person experiences a sense of regret. Conversely, with downward counterfactual thinking, a person experiences a sense of relief when the imagined state was worse than the actual situation that occurred as a result of the decision.

The Zan (2024) study involved 98 adults who participated in a counterfactual experiment to assess the links between decision-making, confidence, and feelings of regret and relief. The results of their study revealed that higher levels of confidence about a decision reduced a person's experience of relief while increasing their experience of regret, because unexpected results incite more intense emotions than expected outcomes. That is, when a person has a higher level of confidence about a decision and the outcome of the decision aligns with their expectations, they will experience a lower level of relief. However, if they have a higher level of confidence about their decision and the outcome was an adverse unexpected one, then they are more likely to experience a greater sense of regret. The findings from Zan's (2024) study were in line with a theory posited by Mellers et al. (1999) known as the Subjective Expected Pleasure theory (SEP), whereby unexpected outcomes tend to evoke stronger emotions than those resulting from expected outcomes. It is worthy of note however, that according to Zan (2024), counterfactual thinking can also provide positive benefits such as enabling people to learn from their prior experiences so they can better prepare for the future.

Of equal importance is to consider the potential emotional impact on a person when they have lower levels of confidence about the decision they made. Van de Calseyde et al. (2018) shed light on this through examining 6 studies comprising a total of 2,268 participants and found that when a person experiences any doubt at all and starts questioning themselves about whether they made a correct decision, their feelings of regret and self-blame intensify for having made a poor choice. Van de Calseyde et al's (2018) study found that people who had already doubted their decision felt more responsible for having made a poor choice and experienced more regret and guilt compared to people who believed they had made a correct decision. Interestingly, Kirkeoen et al. (2013) examined the psychological impact on people who revised their decision before an outcome was reached, and found they experienced even more regret than people who initially chose the wrong option directly without changing their mind.

The community

In summary, over the last few sections, the psychological impact of decision-making has been discussed. This current study has focused on the psychological impact of decisions people made in a disaster, and these impacts are a substantial part of the phenomenon of making decisions through a disaster, as has been exemplified in this study. For many of the participants, the emotions of regret and guilt were experienced in relation to decisions they made at the time. Furthermore, many of the participants at the time I advised them about my study (and they agreed to participate), did so willingly and told me they wanted to tell me their story "so that other people did not have to go through what they went through".

While the feelings of regret and guilt might be uncomfortable and unwanted feelings, there were some positive and constructive consequences that resulted, and this was discussed in the last chapter under the sub-themes of *lessons learnt,* and *I feel different* and is further summarised in the next section. While this study was not quantitative and therefore could not evaluate or measure the degree of guilt and regret people felt in direct relation to the decisions they made, the study did reveal that people experienced regret and guilt as a result of the decisions they made. However, people were able to self-reflect and learn from their decisions and the resulting consequences, and most importantly, with more awareness of what not to do, they may be better equipped to make better decisions in the future and avoid repeating past errors.

Apart from the negative unwanted feelings participants experienced from disaster, as was discussed in the previous chapter and described under the sub-theme, *I feel different,* some positive experiences were felt in the *aftermath* and *long haul* moments of time when the participants reflected back on their whole experience of the disaster. The shared lived experience of the participants revealed a phenomenon in which they felt a stronger sense of belonging to their community and felt that the community pulled together and in doing so, many felt they had grown and learnt things from the disaster that would change the way they prepared for disaster in the future, as described under *lessons learnt*.

In many instances during the *crisis* and *aftermath* moments, the community pulling together was a necessary action because either communications were down and/or the emergency services did not come to assist, and in many instances, both these factors were at play. Several of the participants in this study reiterated that one of the key messages in a disaster is that you cannot rely on authorities before, during, or afterwards to assist, due to a breakdown in communication channels, emergency services being tied up elsewhere fighting fires or working at other disasters, and afterwards with all resources being stretched and diverted to priority areas. These participants suggested that in the lead-up, during, and after a disaster, communities need to pull together rather than relying on the authorities to assist.

The current literature relays this same message; for example, the Australian Institute for Disaster Resilience (2023), states:

> Families and individuals have principal responsibility for their own safety, and for safeguarding their health and wellbeing, property, assets, and livelihoods. This is done through household, family and individual risk identification and implementing mitigation measures, including having adequate financial protection. This may include property, contents and income protection insurance. The collective actions of individuals, families and neighbours can have a major influence on the severity and impact of a hazard. In significant emergencies and disasters, emergency management personnel do not, and never will, have the capability and capacity to solve the emergency threat for every individual at risk. Nor do governments, NGOs, or not-for-profits have the ability (or responsibility) to fully offset the economic, social, cultural and human losses incurred by families and individuals in the course of an emergency. It is the role and responsibility of families and individuals to attain the highest degree of physical and financial self-reliance – before, during and after an emergency. In particular, they should:

- be fully aware of the risk that hazards may present to themselves, their home, work, school and holiday places
- plan to ensure continuous access to health-related requirements during an emergency (for example: the provision of medications and ongoing operation of medical devices that rely on continuous electricity supply)
- actively seek information as the risk environment around them increases or changes
- follow the advice and messaging from emergency services in the event of an emergency
- be aware of relevant legislation that may apply to the individual or the household
- identify their strengths, capacities and potential vulnerabilities, and seek support where needed
- build strong connections within the local neighbourhood
- arrange, where available, for adequate insurance
- find out what relevant local plans are in place in the event of an emergency
- make plans and prepare for dealing with emergencies and their likely impacts and consequences (including evacuation)
- include consideration for animals
- prepare, plan and provide extra support to family members who may not be able to make personal safety decisions (2023, p. 7).

However, while these are the guidelines for individual and family responsibilities in a disaster, as stated earlier in Chapter One, the National Strategy for Disaster Resilience stipulates that a collective effort is required to build disaster resilience and effective response to disasters. This collective effort comprises all sectors of society, including all levels of government, business, the non-government sector, and individuals (Council of Australian Governments, COAG, 2011).

The study by Warner (2021) confirmed that despite the shocking adversity residents endured, it was the collaborative effort of the community which was facilitated by a responsive municipality to engage all relevant parties in the rehabilitation process that

helped the community to move forward and rebuild their lives. Warner (2021) suggested that some of the rebuilding and re-establishing ‘new normal’ techniques could include engaging residents in the planning, implementation, and monitoring of infrastructure upgrades, rehabilitation projects, environmental restoration, and community development initiatives. The new normal seems quite important because an articulated communicated consensus on the ‘new normal’ might alleviate some of the suffering for those who have lost their past future, and do not have a present future to look forward to, as discussed above.

The Australian Institute for Disaster Resilience (2023) Emergency Management Arrangements provide guidance on national principles and practices for disaster resilience and contain much information and guidance that “builds interoperability between jurisdictions, agencies, the private sector, local businesses and community groups by promoting use of a common language and coordinated, nationally agreed principles” (The Australian Institute for Disaster Resilience, 2023, p. iii). Several of the key components of this collaboration is the need for all sectors and particularly local governments to include public consultation and stakeholder involvement, transparency with information sharing and channels to provide feedback, collaborative planning and decision-making, capacity building, shared responsibility, ongoing monitoring and evaluation with responsive adaptation where necessary, and public reporting of updates.

As revealed in this current study, many of the participants felt they had ‘grown’ from their experience in the disaster and felt a greater sense of belonging, mostly because of the collaborative community effort that followed the disaster, with members helping each other out and, in some cases, the local authorities playing a major role in this, but also in many instances, participants feeling disappointed by the lack of response and support from local governments and emergency authorities. The Australian Institute of Disaster Resilience (2023) handbook highlights many benefits of stakeholders working together for community members recovering from a disaster, including enhanced community ownership, better, more effective, and sustainable outcomes with rebuilding projects that reflect the real needs and desires of the community, increased trust and cooperation through transparency, greater inclusivity and empowerment, and capacity building for community members. Ideally, the collaborative rebuilding approach relies on community members being an integral part of shaping the future of their local community which fosters a stronger and more engaged community.

Another consideration for local communities and rebuilding after a disaster was discussed in the earlier chapters of this study and is known as ‘Solastalgia’, which was described by Stanley et al. (2024) as the distress produced by environmental change and exacerbated by environmental management that ignores local knowledge, contributing to feelings of powerlessness and associated with anger and perceptions of a loss of control. These findings suggest that environmental protection and restoration, in consultation with local communities, is important to protect wellbeing. Furthermore, Stanley et al. (2024) found that participants who experienced more solastalgia reported more severe symptoms of post-traumatic stress and anxiety, and felt more anger and loss of control.

The importance of the collective effort of all stakeholders in the planning, response, and recovery aspects of a disaster has been extensively discussed throughout this thesis, and as reported in the previous chapter, many of the participants in this study felt different after their experience in the disaster, with most feeling a stronger sense of connection and belonging to their community. A review of the current literature produced similar findings. For example, Bakic and Ajdukovic’s (2021) findings from a survey of 447 community members who experienced severe flooding in Southeast Europe in 2014, highlighted the importance of both individual and community resources in shaping post-disaster outcomes. In the affected community, strong interpersonal relationships and social capital were crucial for positive adaptation, emphasising the role of social networks and community engagement. Factors such as economic development and trust in leadership also emerged as important, suggesting that economic stability and effective governance also play crucial roles in recovery. Bakic and Ajdukovic’s (2021) study concluded that different communities may require tailored approaches to support resilience and adaptation following disasters.

Moreton (2018) conducted a study of 10 high profile community leaders of community recovery processes across Australia and 112 affected community members from bushfires in Coonabarabran and surrounds, NSW 2013; bushfires in Dunalley and surrounds, Tasmania 2013; floods in the Lockyer Valley, Queensland 2011 and 2013; and cyclones Larry and Yasi that hit the Cassowary Coast in Queensland, 2006 and 2011. Moreton’s (2018) research found that, in general, people did not feel community recovery was about returning back to ‘normal’ nor trying to create a ‘new normal’; instead, residents felt their old community was gone forever after the disaster and they instead wanted a community recovery process that allowed them to accept and express their loss and grief in their own way, find a way to adapt and be able to celebrate who they are, and to incorporate the

disaster experience into their individual and collective identity. They also wanted to ensure that the recovery process was not a finite state or an end goal to reach, but was a long-term evolving process.

Moreton's (2018) research revealed that community members wanted to lead their own recovery in terms of the actions and activities that actually occur on the ground, because they believe that community members and leaders know best what needs to be done and can support each other and better understand a great deal about the complexity of the disaster experience and the recovery process. Moreton (2018, p. 21) stated that if a mature and nuanced understanding of community recovery is to be developed, it will be essential to be open to complexity and difference, respecting varied perspectives rather than seeking to simplify or constrain understanding. It is also essential that the voices of the communities be heard as they share their lived experience. A number of issues were repeatedly raised by community members. Firstly, community members at all sites expressed a desire to change the language of disaster. They advocated moving away from the language of 'recovery' to words such as 'renewal', 're-creation', or 'regeneration'. The term 'recovery' implies pathology, illness, or weakness and the participants stated that this did not fit with their experience. The participants expressed frustration about crisis events being described as 'unprecedented', and pointed out that Australia has always experienced natural hazards and that preparing for and responding to these is a frequent occurrence. Affected community members would like all Australians to accept this as a shared reality. Finally, community members talked about the importance of not applying rigid phases or timelines to recovery, but of allowing affected communities to travel though the process according to their needs and circumstances. These communities demonstrated they are able to define what they need themselves and when they need it.

Moreton (2018), concluded that while high-profile recovery leaders and government and non-government organisations believe they are working in an inclusive and empowering way, many community leaders and members disagree, and instead, strongly believe the actions and activities of ordinary men, women, and children, individually or in groups, make the greatest contribution to community recovery after a crisis. Many also believe that responses and actions that focus on the expressed needs of the local community, rather than imposing processes or solutions onto that community, are the most effective and powerful tools that can be utilised. Finally, Moreton (2018) also found that it was important

that any recovery actions integrate kindness and care towards all community members, no matter how affected by the disaster they appear to be.

Limitations

The limitations to the research method were outlined in Chapter Three, Methodology and Methods, including that this study was confined to people who had experienced a disaster within Australia in the last 10 years only. This excluded potential participants from overseas who may also have had interesting stories to tell. Furthermore, the majority of the participants in this study had experienced fires and therefore further research is needed to fully explore the experiences of other disasters.

Moreover, a person's experience and the meaning they bring to it are contextual, and the experience of being in a disaster in Australia and all that it entails with support services and other factors, may be very different to that of people in other countries. Furthermore, the study was limited to 15 participants and, as a psychologist, I am experienced in conducting personal interviews and listening to people's hardship experiences and deep emotions and helping draw out more in-depth reflections. However, I have not personally experienced living through a disaster, therefore, I may have missed some cues and not asked enough appropriate questions when following the participants with their lines of conversation.

CHAPTER NINE-
CONCLUSION AND RECOMMENDATIONS

This study provides new knowledge regarding *what it is like* for individuals who make personal decisions and take actions during a disaster, and described the phenomenon experienced by participants. Considering people's real-life experiences when developing strategies for disaster preparedness or response, holds significant value because examining people's actual lived experiences provides critical, context-rich insights that can lead to more effective, empathetic, and inclusive disaster preparedness and response strategies. By prioritising lived experience, planners can create solutions that are grounded in lived experience, better meeting the needs of affected populations and ensuring that future disaster management is more effective, and communities and individuals are more resilient. This is increasingly important given the worsening and dynamic risk picture of increased global warming, intensified frequency and severity of disasters and multiple concerning negative impacts after a disaster, in terms of deaths, injuries, property damage, economic losses, and, importantly, the longer-term psychological impacts on a person.

The people in this study were chosen to enable quality in-depth interviews to capture rich data across multiple types of disasters in different States of Australia. The participants stories enabled a broad cross-section of experiences in disasters to be explored to contribute to a general description of the phenomenon itself, the experience of living through and making decisions during a disaster event.

The Royal Commission into National Natural Disaster Arrangements (2020), which was established on 20 February 2020 in response to the extreme bushfire season of 2019-2020 that resulted in devastating loss of life, property and wildlife, and environmental destruction across Australia. The Commission's task was to:

> Consider national natural disaster coordination arrangements. It required us to look to the future. A future where such events will, regrettably, be more frequent and more severe. Consecutive and compounding natural disasters will place increasing stress on existing emergency management arrangements. Although informed by the existing national arrangements, we took a deliberate decision not to find fault, 'point fingers' or attribute blame. Rather, we focused on what should be done to improve arrangements, with a view to ensuring that Australia's national natural disaster coordination arrangements are the best that they can

> be. Australia's alarming disaster outlook requires these improvements. This opportunity should not be lost**.**
> (The Royal Commission into National Natural Disaster Arrangements, 2020, p.6)

The findings of the Royal Commission into National Natural Disaster Arrangements (2020) align with this study, highlighting the need for information and communication to be timely, consistent, and accurate. Some suggestions have been made to address these problems and concerns later in this chapter, so that improvements in future disaster planning to help mitigate risks and minimise harm can be achieved.

Furthermore., this study revealed that the mental and emotional toll of making quick, life-altering decisions during a disaster is significant and has long lasting psychological effects. Understanding these effects contributes to a more comprehensive view of how individuals respond to crises, beyond the aftermath of the disaster itself. The knowledge gained from this study can inform preparedness efforts, training, policies, response protocols, and post-disaster interventions, ultimately helping to mitigate the negative psychological effects of disasters on affected populations

Implications for practice

The previous chapter described the phenomenon revealed in this study. This phenomenon encompassed the following findings:

- participants found their experience started well before the actual impact of the disaster struck
- the participants' experience in the disaster was long-lasting and characterised by chaos and confusion
- the chaos and confusion experienced with the urgent and required decision-making was often fraught with uncertainty and feelings of helplessness
- there was a loss of a lasting sense of loss of ontological security
- the *aftermath* was characterised by a sense of surprise about the decisions made and what had happened, and there was a drive to make sense of these decisions, even more so after the disaster has passed
- there was also a drive to look back and review what had happened and there was a sense of regret, guilt, and anger that were companions throughout the experience

Overall, the phenomenon illustrates the profound and lasting effects of disasters on individuals and their communities, highlighting the interplay of emotions, decisions, and the quest for meaning in the aftermath. The phenomenon captured the complex emotional and psychological journey people underwent during and after a disaster.

With regards to future planning for effective disaster preparation and risk mitigation measures, in relation to developing well-informed policies and education, the phenomenon that was illuminated in this study should be considered, so that the psychological impact for people in future disasters can be lessened. As mentioned previously, this knowledge could help tailor personal preparedness for people before they experience a disaster, and psychological interventions that may be supplied after the event for those who face similar threats in future disasters and to improve mental health outcomes and recovery. In addition, information gained from this study can be used to help guide future disaster response and planning via the development of strategies to support individuals making decisions under pressure and reduce psychological distress in real-time. Results of this study can contribute towards future planning to achieve more positive outcomes and lessen the negative psychological impact on people affected by decision-making in disasters.

Recommendations based on the new knowledge

Individuals

Many people do not consider the psychological and emotional aspects of disaster preparedness because they are frequently focused on physical supplies, evacuation plans, and logistics. People often do not consider how to handle the mental and emotional chaos of a crisis. This lack of mental preparation can lead to more confusion during the disaster. Disaster preparedness should include not only physical resources but also mental readiness. Practices such as mental rehearsal or discussing potential scenarios with family members can reduce the sense of confusion when an actual disaster occurs. Knowing how to act when feeling uncertain or overwhelmed is an essential part of preparedness.

Moreover, when people educate themselves better, on what it might be like for them in a disaster, especially when they need to make decisions, some of the heightened unwanted emotions in the *aftermath* might be lessened. If people could become more aware of their potential resulting emotional responses, especially the longer lasting emotional impact, as has been revealed in the findings, they may be better equipped to manage these emotions.

In addition, individuals could inform themselves better and realise that emergency services may not be able to assist them immediately in a disaster, due to resource and time constraints and order of priorities. Therefore, individuals and families should prepare themselves better so they can survive independently without assistance from emergency response personnel for at least 24-48 hours.

As has been discussed throughout this study, the mental health impact of disasters can be long-lasting and profound, affecting people's ability to cope, make decisions, and recover. There is a genuine need for programs and supports that help individuals and families prepare for the psychological demands of a disaster. Some of these supports could include psychoeducation and training programmes that are designed to educate individuals and families about the psychological impact of disasters and help them to identify and manage common emotional responses such as anxiety and fear.

Within the psychoeducation programmes it might be helpful to include some scenario-based exercises, for example, role-playing exercises in simulated disaster scenarios, so that people can practice their skills, understand what types of decisions and actions might need to be taken and identify weaknesses, to help them understand what it might be like and lead to development of better preparedness plans. Another type of training that might be useful is known as vicarious learning which is described by APA (2024) as the process of learning from observing the experiences of others, rather than through one's own actions. This type of social learning can take place by watching others directly, or through various mediums like videos, audio, or reading.

Furthermore, Psychological First Aid (PFA) training could be more widely disseminated and made more available and financially accessible to individuals and families, especially in disaster prone areas, so that people learn how to provide emotional support to themselves and also to others, including family members in the aftermath of a disaster. This PFA training includes learning about calming techniques, active listening, and offering practical assistance to others in emergencies.

Fear and panic can trigger emotional and physiological responses that impair judgment and decision-making, but understanding these reactions can help mitigate their impact. Not all immediate reactions need to be final decisions; sometimes pausing, even for a moment, can help regain some level of clarity. Acknowledging emotions and allowing oneself brief moments to process them without rushing into a decision and understanding that, in chaotic

environments, the most rational decision may be one that is small and safe rather than large and drastic. Taking momentary pauses (even just a few seconds) to regain composure can make a big difference in reducing emotional decision-making.

Heightened emotions such as anger or confusion may influence a person's behaviour. By anticipating how anger and confusion might affect reactions, individuals can develop strategies to address and manage such behaviours, ensuring that individuals are more likely to follow safety protocols and cooperate with emergency services. One strategy a person can use to mitigate confusion is to limit their choices; for example, either ask oneself, do I evacuate, or do I stay? to avoid too many variables and choices. Having a clear pre-established plan (even if not perfect) can help mitigate confusion and indecision in the heat of the moment, as the plan acts as a framework when rational decision-making becomes difficult.

With regards to accessing, believing and acting on emergency advice information, particularly if the information is obtained via social media or word of mouth, it is important to question the validity of information before acting on it, especially in the panic of the moment. It is important to find trustworthy sources of information both before, and during the disaster. To support the critical evaluation of the accuracy of information obtained via social media it is recommended firstly to verify the source of the information and to seek out credible sources such as government agencies or reputable organisations, for example the DFES website or Facebook page as they tend to post real-time updates, safety tips, and instructions. Similarly emergency broadcasting information can also be found on the ABC Emergency website or ABC local radio station. It may also be useful (if time permits) to cross-check information across multiple trusted platforms to ensure consistency of the information. Ensuring the information is timely and current is important, particularly when disasters can evolve rapidly, therefore using local information in the form of emergency alerts and official hotlines is also recommended.

In hindsight, when reflecting back on decisions and actions taken during the disaster, having some self-compassion is key. It is important for people to recognise that decisions made during the disaster were often taken with the best available information at the time, even if they later seem flawed. Acknowledgment of the confusing nature of the situation and the need to make decisions in the context of uncertainty is helpful, along with embracing the importance of being human, forgiving and being compassionate with oneself and others.

Post-disaster reflection should focus on learning from the experience, not blaming oneself for perceived mistakes. Blaming oneself, leads to increased feelings of regret, guilt, and anger, as has been discussed in this study.

Furthermore, it is important to acknowledge and accept that in some instances people may need additional support from professional services such as counsellors or psychologists, to help them process their feelings and find clarity in the events that unfolded during the disaster with regards to any ongoing and persistent feelings of doubt or self-blame. Moreover, it's crucial that these services are not only available and affordable, but also accessible to all individuals, regardless of their background or circumstances. This means ensuring that help is easy to reach, available in various formats (e.g., in-person, online, or via helplines). Extra support from professional services can help people to better manage the emotional and cognitive burden of potentially questioning everything, offering tools to regain a sense of stability and confidence in decision-making, particularly if they are exposed to future emergency situations.

An easy way to remember effective disaster planning and mitigation strategies could simply be coined as the “5 P’s”:

- Prevention
- Planning
- Preparation
- Practice
- Polish (evaluate and adapt where appropriate)

Moreover, similarly to policies and procedures in many schools, universities and workplaces who plan and practice fire evacuation drills, if individuals and their families and/or house members could also plan and practice evacuation drills, or on the contrary, practice invacuation drills if they choose not to evacuate, there would be less reliance on logical and well thought-out decisions in disasters. This reliance on automated, practiced responses, rather than the risk of poor decision making in the heat of the moment could help to reduce harmful consequences of decisions made in the midst of the disaster. The development and practice of a plan would also minimise any demotivation or reluctance to prepare, especially in the event where someone might have been in a previous disaster and, as a result, feel too stressed or overwhelmed at the possibility of being in another disaster. This study revealed that most of the participants did not feel they had adequately prepared or practiced

for the disaster and exposed the resulting consequences for mental health and their sense on on-going security and safety.

Questions to ask oneself after the practice could include: did the plan work and what worked best? Answering these questions could then lead to ‘polishing’ or refining the plan. Contingency plans could also be considered, whereby if the first response planned cannot be enacted for one reason or another, a contingency plan has also been formulated and practiced, which can then be put into practice at short notice.

Policy and Practice Changes

With regards to future planning, this study has highlighted the importance of involving all stakeholders, including community members, to really invest and educate in appropriate planning, preparedness and risk mitigation measures and to prioritise resilience and mental health wellbeing into planning and policy frameworks. This includes identifying and addressing vulnerabilities, promoting flexible and adaptive strategies, and investing in infrastructure that can withstand and recover from disasters. Recommendations to improve disaster response, recovery, and resilience are crucial for policymakers to create effective, efficient, and sustainable disaster management strategies.

The findings from the Royal Commission into National Natural Disaster Arrangements (2020) align with those of this study, emphasising that the flow of information and communication must be timely, consistent, and accurate. To improve communication and information sharing, the following suggestions are made: ensuring continuous exchange of information among relevant stakeholders before, during, and after a disaster; leveraging technology to deliver timely and accurate updates. Additionally, it is crucial to identify key personnel and establish clear communication channels as part of disaster planning and community training prior to any disaster striking.

To address information overload and misinformation, ensuring that timely and accurate information is available through official channels, such as emergency services, trusted media outlets, and relevant government agencies can help reduce individuals’ reliance on social media for updates. Unofficial social media platforms may not always provide reliable or accurate information, so directing people to verified sources can support better-informed decision-making during a crisis. The collaborative efforts between authorities such as the

WHO, various levels of government, DFES and other Australian emergency management agencies, at times of disasters, along with some of the strategies that have been discussed throughout this study to reduce misinformation could be strategically employed to achieve desired outcomes, that is, people being able to rely more on emergency advice warnings and make informed decisions about evacuating, without feeling confused and hindered by them.

Some of the strategies that have been discussed throughout this study to help reduce misinformation and information overload in a disaster include:

- Clear and timely communication
- Consistency across the various channels
- Language and accessibility - information should be accessible to all members of the community, regardless of language, education, or disability. For instance, offering information in multiple languages and formats (including sign language, braille, or easy-to-read versions) ensures that no one is excluded from life-saving updates
- Targeted messaging for vulnerable groups, such as the elderly, low-income families, people with disabilities, and those living in rural or isolated areas may not have the same access to digital platforms or may have special needs for evacuation or safety instructions. Communication strategies should be designed to reach these groups through targeted outreach, community organisations, and support networks.
- Verification and prevention of misinformation
- Training and Preparedness for Officials- disaster management systems must include training for officials in communication strategies. Ensuring that government agencies, emergency services, and spokespersons are well-prepared to deliver accurate, calm, and empathetic messages is essential. A prepared spokesperson can reassure the public and convey the seriousness of a situation without increasing panic.

By focusing on these areas, the management of information through official channels during a disaster can be vastly improved, leading to better public response, greater trust in authorities, and ultimately more lives and properties saved. As has been highlighted throughout this study, access to trustworthy information, before and during a disaster is essential, as it plays a key role in reducing both the immediate and long-term mental health impacts on people.

The phenomenon investigated in this study revealed that, during the disaster people felt confused and made decisions that they later questioned after the disaster had subsided.

This suggests that, in the heat of the moment, logical, rational responses may not come easily. Instead, people are likely to act on instinct, emotions, and incomplete information, leading to choices they may later regret or reconsider. To address this, it's important to recognise that heightened emotions during a disaster can influence how individuals process and respond to information. Understanding this can help planners create communication strategies that are clear, empathetic, and designed to minimise emotional escalation. Presenting information in a calm and supportive way can help reduce panic and confusion, aiding people in making better-informed decisions

As was previously mentioned, during a disaster, it is not always possible for emergency services to assist immediately, due to resource and time constraints. It was also noted by many of the participants in this study that after the disaster had subsided, emergency personnel and aid resources were still not forthcoming and several of the participants in this study, stepped up and helped lead community recovery efforts. One way to bolster community-led leadership and recovery effort could be to have pre-established roles or decision-making processes before a disaster strikes. In doing so, people who exhibit leadership potential in moments of confusion in a crisis and can think with clearer heads and well-thought out logic can step in to guide the group with a calm demeanour and perhaps a level of authority that has been predetermined prior to the disaster. The notion of having to make decisions that may be critical and far reaching, on behalf of others, requires someone who is not only calm, but also emotionally resilient and capable of leading and this provides another very important layer of mental health preparedness for a community in a disaster situation.

Reliable and strong leadership can help achieve better outcomes in a disaster. Stenner and Kaposi (2020) refer to the COVID-19 pandemic and specifically, the Queen's role in providing leadership through the unprecedented global crisis. Stenner and Kaposi (2020) suggested that the Queen played a notable role in providing stability, reassurance, and leadership during a period where much of the world was in turmoil. They noted that the way she achieved this was via, three valuable features of leadership during a crisis. Stenner and Kaposi (2020) found these features to be empathy (note her global 'we'), a deliberate sense of calm, and carefully bounded optimism: the return of 'better days' thus registers the tragic dimension whilst calmly offering light at the end of the tunnel without foreclosing on other challenges in store. Stenner and Kaposi (2020) suggested the Queen was managing something quite subtle, that is, the communicative paradox of how to give hope whilst not

giving too much of it, of acknowledging dangers ahead but without drawing too much attention to them.

The key principles noted by Stenner and Kaposi (2020) were in line with those suggested by The Royal Commission into National Natural Disaster Arrangements, (2020), and as is recommended in this study, whereby, disaster information needs to be presented from trusted sources, calmly and without attributing blame or 'point scoring'. By integrating these recommendations into policy, governments can reduce the mental health consequences of disasters ultimately reducing the impact of disasters on lives and livelihoods. The key is for policymakers to understand the prevalence and impact of the mental health sequelae of disasters and view disaster management as an ongoing, collaborative process that requires continuous investment, adaptation, and learning.

Implications for further research

This current research addresses the experience (what it was like), and the resulting personal psychological impact for people who made decisions and took actions during disasters. Most of the disasters explored in this study were acute and fast to escalate, and often no or little warning about the impending disaster was received by participants. Therefore, Investigating the impacts and meanings of longer-term and /or slow onset disasters such as conflict, drought or pandemic, which may be as impactful in the longer term, but less acute and time pressured in some ways might be useful to gain a more comprehensive picture of how different types of crises affect individuals in both the short and long term. There is, for example, some extant research that considers the prevalence of mental health problems, including suicide, in farming communities during drought and the recommendations of the current research could be extended to inoculate individuals and further support these communities during extended duration events.

Most of the participants in this research were homeowners in Australia and therefore future research could seek the views of other groups of people, such as, younger people, those with culturally and linguistically diverse backgrounds, or low socio-economic backgrounds, including the homeless, and mobile populations including tourists, grey nomads and fly-in-fly-out workers. This is important because including a broader range of people in future research can provide a more comprehensive understanding of how different contexts influence mental health and decision-making experience during disasters. Further research in this field could uncover varying viewpoints and emotional responses related to disaster

preparedness and response. Different groups may have unique vulnerabilities, resources, and coping mechanisms that influence how they experience disasters and make decisions and understanding these differences is crucial for developing inclusive disaster management strategies that effectively address the needs of all community members.

Future research should consider how to recognise and respond to the fact that decision-making impacting mental health might be a common longer term problem, and therefore, an empirical study would be helpful to quantify the prevalence of this issue. It is useful to test pre and post-disaster interventions to help mitigate the psychological impact of disasters and assess whether the response to intervention was effective, or whether it needs amending or adapting. Another useful approach to consider is how to introduce and support these understandings and actions into communities and include them in future policies.

In addition, it might be useful to examine communities after they have experienced a disaster and the types of factors discussed in this study; for example, did communities pull together and practice and plan their emergency response protocol? Did they have awareness as a community of what to expect and how they might react in the disaster? Furthermore, it would be valuable to explore the concept of vicarious trauma, whereby did individuals who were not directly affected by the disaster still experience negative psychological impacts simply by being part of the community and in close proximity to the event. Understanding these dynamics can provide deeper insights into community resilience, preparedness, and the broader emotional and psychological consequences of disasters on individuals, even those who were not directly impacted. This knowledge could help strengthen community-based mental health planning and support systems, ensuring a more holistic approach to recovery and mental health care.

A final note

People affected by disasters can harness their individual, interpersonal, and community resources to recover and adapt. Pre and Post-disaster interventions should aim to strengthen family and community ties, thus increasing available social support and community connectedness.

In the aftermath of a disaster, people might experience cognitive dissonance (the discomfort from holding conflicting thoughts) as they reflect on the decisions they made in a confusing, high-stress environment. While it’s normal to question those decisions later on, the reality is that disasters are chaotic, unpredictable events, and no one can predict every outcome.

Understanding that confusion is part of the human response to crisis can help foster a more compassionate and forgiving approach to those moments of uncertainty. Ultimately, learning from the experience, reflecting on what worked, what didn't, and what could be improved for next time is an important part of personal and collective resilience.

BIBLIOGRAPHY

American Psychiatric Association (APA). (2013). Diagnostic and Statistical Manual of Mental Disorders: DSM-5. https://doi.org/10.1176/appi.books.9780890425596

American Psychological Association (APA). (2022). *What do practicing psychologists do?* https://www.apa.org/topics/psychotherapy/about-psychologists

American Psychological Association (APA). (2024). *APA Dictionary of Psychology*. https://dictionary.apa.org/regret

Aupperle, R. L., Melrose, A. J., Stein, M. B., & Paulus, M. P. (2012). Executive function and PTSD: disengaging from trauma. *Neuropharmacology*, *62*(2), 686-694. https://doi.org/10.1016/j.neuropharm.2011.02.008

Australian Communications and Media Authority. (2022). *Communications and Media in Australia: How We Use the Internet.* https://www.acma.gov.au/publications/2021-12/report/communications-and-media-australia-how-we-use-internet

Australian Institute for Disaster Resilience. (2023). Handbook Collection Australian Emergency Management Arrangements. Third Edition. handbook_aema_web_2023.pdf (aidr.org.au)

Australian Institute for Disaster Resilience Knowledge Hub. (2014). Parkerville and Perth Hills Bushfire, 2014. https://knowledge.aidr.org.au/resources/bushfire-parkerville-and-perth-hills-western-australia-2014

Australian Government Department of Home Affairs (2022, April 22). *Emergency Management.* https://www.homeaffairs.gov.au/about-us/our-portfolios/emergency-management/about-emergency-management

Australian Red Cross. (2021). *Understanding Preparedness and Recovery.* https://www.redcross.org.au/globalassets/corporatecms-migration/publications-research--reports/preparedness-report-july-2021.pdf

Bakic, H., & Ajdukovic, D. (2021). Resilience after natural disasters: the process of harnessing resources in communities differentially exposed to a flood. *European Journal of Psychotraumatology, 12*(1). https://doi.org/10.1080/20008198.2021.1891733

Baltes, L., & Birsan, A. (2014). Crisis Communication Plan. In ”Carol I”, International Scientific Conference Strategies XXI. Vol. 2. (pp. 20-26). https://www.proquest.com/conference-papers-proceedings/crisis-communication-plan/docview/1528149146/se-2

Bird, D., Ling, M., & Haynes, K. (2012). Flooding Facebook: the use of social media during the Queensland and Victorian floods. *Australian Journal of Emergency Management*, *27*(1), 27-33. https://doi.org/10.3316/agispt.20121974

Bondi, L. (2014). Feeling insecure: a personal account in a psychoanalytic voice. *Social & Cultural Geography*, 15(3), 332-350. https://doi.org/10.1080/14649365.2013.864783

Boon, H. (2013). Preparedness and vulnerability: an issue of equity in Australian disaster situations. *Australian Journal of Emergency Management*, *28*(3), 12-16. https://doi.org/10.3316/agispt.20132324

Botzen, W., Kunreuther, H., & Michel-Kerjan, E. (2015). Divergence between individual perceptions and objective indicators of tail risks: Evidence from floodplain residents in New York City. *Judgment and Decision Making, 10*(4), 365-385. https://doi.org/10.1017/S1930297500005179

Bowlby, J., & Bowlby, J. (2018). *The Milan seminar: clinical applications of attachment theory* (M. Bacciagaluppi, Ed.). Taylor and Francis, an imprint of Routledge. https://doi.org/10.4324/9780429482441

Bryant, R. A., Gibbs, L., Colin Gallagher, H., Pattison, P., Lusher, D., MacDougall, C., Harms, L., Block, K., Ireton, G., Richardson, J., Forbes, D., Molyneaux, R., & O’Donnell, M. (2021). The dynamic course of psychological outcomes following the Victorian Black Saturday bushfires. *Australian and New Zealand Journal of Psychiatry*, *55*(7), 666-677. https://doi.org/10.1177/0004867420969815

Bunting, H., Gaskell, J., & Stoker, G. (2021). Trust, mistrust and distrust: A gendered perspective on meanings and measurements. *Frontiers in Political Science, 3.* https://doi.org/10.3389/fpos.2021.642129

Busetto, L., Wick, W., & Gumbinger, C. (2020) How to use and assess qualitative research methods. *Neurological Research and Practice,* 2(14), 1-10. https://doi.org/10.1186/s42466-020-00059

Callaghan, R. (2024). The rise and rise of extreme weather. *Horizons*, Spring 2024, p. 30-33. RAC, WA.

Campbell, M., Inman, J., Kirmani, A., & Price, L. (2020). In times of trouble: A framework for understanding consumers responses to threats. *Journal of Consumer Research, 47*(3), 311-326. https://doi.org/10.1093/jcr/ucaa036

Cannaerts, N. (2021). Crisis communication in public emergencies: multistakeholders' perspectives. *International Journal of Emergency Services*, *10*(1), 112-130. https://doi.org/10.1108/IJES-07-2019-0038

Centre for Research on Epidemiology of Disasters (CRED). (2023). *2021 Disasters in Numbers. Extreme Events Defining our lives*. https://www.emdat.be

Cohen, L., Manion, L., & Morrison, K. (2017). *Research methods in education* (6th ed.).

Commonwealth of Australia Constitution Act [Australia], 1900. https://www.refworld.org/docid/483ea5622

Contreras, A. (2024). *Traumatization and its Aftermath: A Systemic Approach to Understanding and Treating Trauma Disorders*. Routledge.

Council of Australian Governments (COAG). (2011). *National Strategy for Disaster Resilience.* https://www.homeaffairs.gov.au/emergency/files/national-strategy-disaster-resilience.pdf

Council of Europe. (2023). *Information Disorder.* https://www.coe.int/en/web/freedom-expression/information-disorder

Dana, R. G., Thompson, R. R., Holman, E. A., Wong-Parodi, G., & Roxane, C. S. (2022). Association between repeated exposure to hurricanes and mental health in a representative sample of Florida residents. *JAMA Network Open, 5*(6). https://doi.org/10.1001/jamanetworkopen.2022.17251

Darley, J. M., & Latane, B. (1968). Bystander intervention in emergencies: diffusion of responsibility. *Journal of Personality and Social Psychology*, *8*(4p1), 377-383. https://doi.org/10.1037/h0025589

de Bruin, W., Dombrovski, A., Parker, A., & Szanto, K. (2015). Late-life depression, suicidal ideation, and attempted suicide: the role of individual differences in

maximizing, regret, and negative decision outcomes. *Journal of Behavioral Decision Making*, *29*(4), 363-371. https://doi.org/10.1002/bdm.1882

DeLamater, J. D., Myers, D. J., & Collett, J. L. (2018). *Social psychology* (Eighth edition), Routledge.

Diagnostic and statistical manual of mental disorders: DSM-5. (2013). Arlington, VA: American Psychiatric Association.

Dionne, S. D., Gooty, J., Yammarino, F. J., & Sayama, H. (2018). Decision making in crisis: A multilevel model of the interplay between cognitions and emotions. *Organizational Psychology Review*, *8*(2-3), 95-124. https://doi.org/10.1177/2041386618756063

Drabek, T. E. (2012). *Human System Responses to Disaster: An inventory of Sociological Findings*. Springer Science & Business Media.

Edelman. (2021). *Measuring Trust: A Prerequisite to Unlocking Growth.* https://www.edelmandxi.com/sites/g/files/aatuss611/files/2021-11

Edelman. (2022). *2022 Edleman Trust Barometer*. https://www.edelman.com/trust/2022-trust-barometer

Fernandes-Taylor, S., & Bloom, J. R. (2011). Post-treatment regret among young breast cancer survivors*. Psychooncology, 20*(5):506-16. https://doi.org/10.1002/pon.1749

Fischer, P., Krueger, J. I., Greitemeyer, T., Vogrincic, C., Kastenmüller, A., Frey, D., Heene, M., Wicher, M., & Kainbacher, M. (2011). The bystander-effect: a meta-analytic review on bystander intervention in dangerous and non-dangerous emergencies. *Psychological Bulletin, 137*(4), 517-537. https://doi.org/10.1037/a0023304.

Forrester. (2021). *The Future of Work*. https://www.forrester.com/technology/future-of-work/

Gantt, P., & Gantt, R. (2012). Disaster psychology: dispelling the myths of panic. *Professional Safety, 57(8)*, 42-49. https://www.proquest.com/scholarly-journals/disaster-pscychology-dispelling-myths-panic/docview/1118399459/se-2

Geng, F., Zhou, Y., Liang, Y., & Fan, F. (2018). A Longitudinal Study of Recurrent Experience of Earthquake and Mental Health Problems Among Chinese

Adolescents. *Frontiers in Psychology*, *9*, 1259-1259. https://doi.org/10.3389/fpsyg.2018.01259

Gentsch, A., & Kuehn E. (2022). Clinical manifestations of body memories: the impact of past bodily experiences on mental health. *Brain Science, 12*(5), 594. https://doi.org/10.3390/brainsci12050594

Giddens, A. (1991). *Modernity and self-identity: Self and society in the late modern age*. Stanford University Press.

Giddens, A. (2015). *Studies in social and political theory*. Routledge. https://doi.org/10.4324/9781315763224

Government of Western Australia. (2022). *Emergency WA*. https://www.emergency.wa.gov.au

Grimes, K. (2024) Mental health specialists give tips on how to psychologically prepare for bushfires, floods, cyclones. https://www.abc.net.au/news/2023-11-25/mental-health-tips-psychologically-prepare-natural-disasters/103069022

Gurtner, Y., & Parison, S. (2021). Promoting owner responsibility for pets in disasters. *The Australian Journal of Emergency Management, 36*(3), 37-43. https://www.proquest.com/scholarly-journals/promoting-owner-responsibility-pets-disasters/docview/2674454165/se-2

Haney, T. J. & Gray-Scholz, D. (2020). Flooding and the 'new normal': what is the role of gender in experiences of post-disaster ontological security? *Disasters, 44*, 262-284. https://doi.org/10.1111/disa.12372

Harries, T. (2008). Feeling secure of being secure? Why it can seem better not to protect yourself against a natural hazard*. Health, Risk & Society 10*(5), 479-490. https://doi.org/10.1080/13698570802381162

Heidegger, M. (1962). *Being and time*. Harper & Row.

Herovic, E., Sellnow, T., & Sellnow, D. (2020). Challenges and opportunities for pre-crisis emergency risk communication: lessons learned from the earthquake community. *Journal of Risk Research, 23(*3), 349-364. https://doi.org/10.1080/13669877.2019.1569097

Hesse, F., Care, E., Buder, J., Sassenberg, K., & Griffin, P. (2014). A Framework for Teachable Collaborative Problem Solving Skills. In *Assessment and Teaching of 21st Century Skills* (pp. 37-56). Springer Netherlands. https://doi.org/10.1007/978-94-017-9395-7_2

Hiltz, S. R., & Plotnick, L. (2013). Dealing with information overload when using social media for emergency management: Emerging solutions. In T. Comes, F. Fiedrich, S. Fortier, J. Geldermann and T.Müller (Ed.). Proceedings of the 10th International ISCRAM Conference (pp. 823-827). Baden-Baden.

Horrigan-Kelly, M., Millar, M., & Dowling, M. (2016). Understanding the key tenets of Heidegger's philosophy for interpretive phenomenological research. *International Journal of Qualitative Methods*, *15*(1). https://doi.org/10.1177/1609406916680634

Huder, R. (2012). *Disaster Operations and Decision Making.* John Wiley & Sons. https://ebookcentral.proquest.com/lib/flinders/detail.action?docID=817484

Husserl, E.(1975). *Introduction to the Logical Investigations. A Draft of a Preface to the Logical Investigations (1913)* (1st ed. 1975). Springer Netherlands. https://doi.org/10.1007/978-94-010-1655-1

Institute for Economics and Peace. (2020). *Ecological Threat Register 2020. Understanding Ecological Threats, Resilience and Peace.* https://www.visionofhumanity.org/wp-content/uploads/2020/10/ETR_2020_web-1.pdf

Intergovernmental Panel on Climate Change.(2022). Climate change 2022: Mitigation of climate change. sixth assessment report. https://www.ipcc.ch

Janoff-Bulman, R. (1992). *Shattered Assumptions: Towards a New Psychology of Trauma*. Free Press.

Johnson, P. F., Johnson, C. E., & Sutherland, C. (2011). Stay or go? Human behavior and decision making in bushfires and other emergencies. *Fire Technology*, *48*(1), 137-153. https://doi.org/10.1007/S10694-011-0213-1

Jones, N., Thompson, R., Schetter, C., & Silver, r. (2017). Distress and rumor exposure on social media during a campus lockdown. *Psychological and Cognitive Sciences*,

114(44), 11663-11668. https://doi-org.ezproxy.flinders.edu.au/10.1073/pnas.1708518114

Kee, H., Eldridge, P., & Wilkins, R. L. (2019). *Husserl: German Perspectives* (J. J. Drummond & O. Höffe, Eds.; 1st ed.). Fordham University Press. https://doi.org/10.2307/j.ctvfjd08m

Keya, T. A., Leela, A., Habib, N., Rashid, M., & Bakthavatchalam, P. (2023). Mental health disorders due to disaster exposure: A systematic review and meta-analysis. *Curēus (Palo Alto, CA)*, *15*(4), e37031-e37031. https://doi.org/10.7759/cureus.37031

Kirkebøen, G., Vasaasen, E., & Eigen, K. (2013). Revisions and regret: The cost of changing your mind. *Journal of Behavioral Decision Making, 26*, 1-12. https://doi.org/10.1002/bdm.756

Kivunja, C., & Bawa, A. (2017). Understanding and applying research paradigms in educational contexts. *International Journal of Higher Education 6*(5), 26-41. https://doi.org/10.5430/ijhe.v6n5p26

Laverty, S. M. (2003). Hermeneutic Phenomenology and Phenomenology: A Comparison of Historical and Methodological Considerations. *International Journal of Qualitative Methods*, *2*(3), 21-35. https://doi.org/10.1177/160940690300200303

Ledoux, J. (2015). *Anxious: Using the Brain to Understand and Treat Fear and Anxiety*. Viking.

Leppold, C., Gibbs, L., Block, K., Reifels, L., & Quinn, P. (2022). Public health implications of multiple disaster exposures*. The Lancet, Public Health,* 7, e274-86. https://doi.org/10.1016/S2468-2667(21)00255-3

Lerner, J., & Tiedens, L. (2006). Portrait of the angry decision maker: how appraisal tendencies shape anger's influence on cognition. *Journal of Behaviour Decision Making, 19*, 115-137. https://doi.org/10.1002/bdm.515

Levenson, R. W. (2014). The autonomic nervous system and emotion. *Emotion Review, 6*(2), 100-112. https://doi.org/10.1177/1754073913512003

Levitin, D. (2015). *The Organized Mind: Thinking Straight in the Age of Information Overload.* Penguin.

Markus, A. (2021). Mapping social cohesion. *Scanlon Foundation Research Institute.* https://scanloninstitute.org.au/australian-cohesion-index-2021/

Maslow, A. (1943). A theory of human motivation. *Psychological Review, 50*(4), 370-396. https://doi.org/10.1037/h0054346

Matarazzo, O., Abbamonte, L., Greco, C., Pizzini, B., & Nigro, G. (2021). Regret and other emotions related to decision-making: antecedents, appraisals, and phenomenological aspects. *Frontiers in Psychology, 12, 1-10.* https://doi.org/10.3389/fpsyg.2021.783248

Mawson, A. R. (2023). Understanding mass panic and other collective responses to threat and disaster. *Psychiatry, 86*(4), 278-298. https://doi.org/10.1080/00332747.2023.2289814

Mellers, B., Schwartz, A., & Ritov, I. (1999). Emotion-based choice. *Journal of Experimental Psychology: General, 128*(3), 332-345. https://doi.org/10.1037/0096-3445.128.3.332

Meyer, R., & Kunreuther, H. (2017). *The Ostrich Paradox: Why We Underprepare for Disasters.* Wharton School Press.

Moreton, M. (2018). We needed help, but we weren't helpless: the community experience of community recovery after natural disasters in Australia. *Australian Journal of Emergency Management, 33*(1), 19-22.

National Emergency Management Agency. (2022). *Helping Communities in Times of Emergency While Preparing Australia for Future Disasters.* https://nema.gov.au

Norman, S., Haller, H., Kim, H., Allard, C., Porter, K., Stein, M, Venners, M., Authier, C., & Rauch, S. (2018). Trauma related guilt cognitions partially mediate the relationship between PTSD symptom severity and functioning among returning combat veterans. *Journal of Psychiatric Research,100*, 56-62. https://doi.org/10.1016/j.jpsychires.2018.02.003

North, C. S., & Pfefferbaum, B. (2013). Mental Health Response to Community Disasters: A Systematic Review. *JAMA: the Journal of the American Medical Association*, *310*(5), 507-518. https://doi.org/10.1001/jama.2013.107799

Ommer, J., Kalas, M., Neumann, J., Blackburn, S., & Cloke, H. L. (2024). Turning regret into future disaster preparedness with no-regrets, *EGUsphere [preprint].* https://doi.org/10.5194/egusphere-2024-1186

Organisation for Economic Co-operation and Development (OECD). (2023). *Government at a Glance: Country Notes, Australia.* https://www.oecd.org/publication/government-at-a-glance/2023/country-notes/australia-f4c8658f

Park, J., Wood, J., Bondi, C., Del Arco, A., & Moghaddam, B. (2016). Anxiety evokes hypofrontality and disrupts rule-relevant encoding by dorsomedial prefrontal cortex neurons. *Journal of Neuroscience, 36*(11), 3322-3335. https://doi.org/10.1523/JNEUROSCI.4250-15.2016

Perry, C., Pulley, W., Paugh, J., Mignot, S., & Macgregor-Skinner, G. (2013). Why some ignore public health disaster warnings. *Journal of healthcare protection management: publication of the International Association for Hospital Security, 29(1)*, 20-26. https://www.researchgate.net/publication/236065824

Perry, R., & Greene, M. (2007). The role of ethnicity in the emergency decision-making process. *Sociological Inquiry, 52*(4), 306-334. https://doi.org/10.1111/j.1475-682x

Peters, A., McEwen, B., & Friston, K. (2017). Uncertainty and stress: Why it causes diseases and how it is mastered by the brain. *Progress in Neurobiology (156*), 164-188. https://doi.org/10.1016/j.pneurobio.2017.05.004

Phillips-Wren, G., & Adya, M. (2020). Decision making under stress: the role of information overload, time pressure, complexity, and uncertainty. *Journal of Decision Systems, 29*(1), 213-225. https://doi-org.ezproxy.flinders.edu.au/10.1080/12460125.2020.1768680

Philpot, R., Liebst, L. S., Levine, M., Bernasco, W., & Lindegaard, M. R. (2020). Would I be helped? Cross-national CCTV footage shows that intervention is the norm in public conflicts. *American Psychologist, 75*(1), 66-75. https://doi.org/10.1037/amp0000469

Phoenix Australia. (2024). Australian Guidelines for the Prevention and Treatment of Acute Stress Disorder, Post-traumatic Stress Disorder and Complex PTSD. https://www.phoenixaustralia.org/australian-guidelines-for-ptsd

Quarantelli, E. (1988). The NORC research on the Arkansas tornado: a fountainhead study. *International Journal of Mass Emergencies and Disasters, 6*(3), 283-310. https://doi.org/10.1177/028072708800600305

Ricker, T. J., Vergauwe, E., & Cowan, N. (2016). Decay theory of immediate memory: From Brown (1958) to today (2014). *The Quarterly Journal of Experimental Psychology*, *69*(10), 1969-1995. DOI:10.1080/17470218.2014.914546

Ripberger, J. T., Silva, C. L., Jenkins-Smith, H. C., Carlson, D. E., James, M., & Herron, K. G. (2015). False Alarms and Missed Events: The Impact and Origins of Perceived Inaccuracy in Tornado Warning Systems. *Risk Analysis*, *35*(1), 44-56. https://doi.org/10.1111/risa.12262

Rotter, J. B. (1967). *Interpersonal Trust Scale* . APA PsycTests. https://doi.org/10.1037/t02271-000

Sahakian, B., & Labuzetta, J. (2013). *Bad Moves: How Decision Making Goes Wrong, and the Ethics of Smart Drugs.* Oxford University Press.

Saroj, A., & Pal, S. (2020). Use of social media in crisis management: A survey. *International Journal of Disaster Risk Reduction*, *48*, Article 101584. https://doi.org/10.1016/j.ijdrr.2020.101584

Seeger, M., & Sellnow, T. L. (2016). *Narratives of Crisis.* Vol. 19, High reliability and crisis management. Palo Alto: Stanford University Press.

Sloan, A., & Bowe, B. (2014). Phenomenology and Hermeneutic Phenomenology: the Philosophy, the Methodologies and Using Hermeneutic Phenomenology. *Quality & Quantity*, *48*(3), 1291-1303. doi:10.1007/s11135-013-9835-3

Smith J. A., Flowers P., & Larkin M. (2009). *Interpretative phenomenological analysis: Theory, method and research*. Sage.

Smith, M., & Shoichet, C. (2012). *Sandy's aftermath: 33 dead, millions without power.* CNN. http://edition.cnn.com/2012/10/30/us/tropical-weather-sandy/index.html

Solomon, S., Greenberg, J., & Pyszczynski T. (1991). A terror management theory of social behavior: The psychological functions of self-esteem and cultural worldviews.

Advances in Experimental Social Psychology, 24, 93-159. https://doi.org/10.1016/S0065-2601(08)60328-7

Stangor, C. (2015). *Research Methods for the Behavioral Sciences* (3rd ed.). Houghton Mifflin.

Stanley, S., Heffernan, T., Macleod, E., Lane, J., Walker, I., Evans, O., Greenwood, L., Kurz, T., Calear, A., Reynolds, J., Cruwys, T., Christensen, B., Sutherland, S., & Rodney, R. (2024). Solastalgia following the Australian summer of bushfires: Qualitative and quantitative insights about environmental distress and recovery. *Journal of Environmental Psychology, 102273*. https://doi.org/10.1016/j.jenvp.2024.102273

Starbird, K., Maddock J., Orand, M., Achterman, P., & Mason R. (2014). Rumors, false flags, and digital vigilantes: Misinformation on Twitter after the 2013 Boston Marathon bombing. *Proceedings of the iConference 2014* (pp. 654-662). iSchools, Grandville.

State Emergency Management Committee. (2016). *Emergencies in Western Australia. A Guide for the News Media*. https://www.wa.gov.au/system/files/2022-09/SEMC-WA-Media-Reference-Guide.pdf

State Emergency Management Committee. (2022). *About the State Emergency Management Committee.* https://www.wa.gov.au/organisation/state-emergency-management-committee/about-the-state-emergency-management-committee

Stenner, P., & Kaposi, D. (2020). *Virus ante portas: The COVID-19 pandemic as a liminal hotspot diecisiete*. https://diecisiete.org/actualidad/virus-ante-portas-the-covid-19-pandemic-as-a-liminal-hotspot

The Lancet (2020). The truth is out there somewhere. *Science Direct, 396*(10247), 291. https://doi.org/10.1016/S0140-6736(20)31678-0

The Australian Red Cross. (2021). Understanding Preparedness and Recovery. A Survey of People's Preparedness and Recovery Experience for Emergencies. https://www.redcross.org.au/globalassets/cms/publications/preparedness-report-july-2021.pdf

The Australian Red Cross. (2022). *Cyclone Seroja. Kalbarri Outreach Report.* File Users/61413/Downloads/Tropical%20Cyclone:///C:/ 20Seroja%20Kalbarri%20Australian%20Red%20Cross%20Outreach%20Report*.pdf*

The Royal Commission into National Natural Disaster Arrangements (2020). The *Royal Commission into National Natural Disaster Arrangements Report.* https://www.royalcommission.gov.au/system/files/2020

Thomas, J. C., Macdonald, P. D., & Wenink, E. (2009). Ethical decision making in a crisis. *Journal of Public Health Management and Practice, 15*(2), 16-21. https://doi.org/10.1097/01.phh.0000346021.06803.76

Tulin, M., Hameleers, M., de Vreese, C., Opgenhaffen, M., & Wouters, F. (2024). Beyond Belief Correction: Effects of the Truth Sandwich on Perceptions of Fact-checkers and Verification Intentions. *Journalism Practice*, 1-20. https://doi.org/10.1080/17512786.2024.2311311

Turner, R. H., & Killian, L. M. (1987). *Collective Behavior* (3rd ed.). Prentice-Hall.

United Nations. (2016). *Report of the Open-Ended Intergovernmental Expert Working Group on Indicators and Terminology Relating to Disaster Risk Reduction*. https://www.preventionweb.net/files/50683_oiewgreportenglish.pdf

United Nations. (2022a). *The Early Warnings For All Initiative Advisory Panel.* https://www.un.org/climatechange

United Nations. (2022b). *Office for Outer Space Affairs UN-SPIDER Knowledge Portal*. https://www.un-spider.org/risks-and-disasters/emergency-and-disaster-management#no-back

United Nations. (2023). *Sustainable Development Goals.* https://www.un.org/sustainabledevelopment/sustainable-development-goals/

United Nations Office for Disaster Risk Reduction. (2015). *Sendai Framework for Disaster Risk Reduction 2015-2030*. https://www.undrr.org/publication/sendai-framework-disaster-risk-reduction-2015-2030

United Nations Office for Disaster Risk Reduction. (2021). *The Human Cost of Disasters: An Overview of the Last 20 Years (2000-2019).*

https://www.undrr.org/publication/human-cost-disasters-overview-last-20-years-2000-2019

United Nations Office for Disaster Risk Reduction. (2022). *Cognitive Biases: This is how we can make better decisions about risk*. https://www.undrr.org/news/cognitive-biases-how-we-can-make-better-decisions-about-risk

United States Department of Health and Human Services, Centers for Disease Control and Prevention (2019). *Psychology of a Crisis. Crisis + Emergency Risk Communication.* https://emergency.cdc.gov/cerc

Urcia, I. (2021) Comparisons of Adaptations in Grounded Theory and Phenomenology: Selecting the Specific Qualitative Research Methodology. *International Journal of Qualitative Research, 20*, 1-14. https://doi.org/10.1177/16094069211045474

Vandermause, R. K., & Fleming, S. E. (2011). Philosophical Hermeneutic Interviewing. *International Journal of Qualitative Methods, 10*(4), 367-377. https://doi.org/10.1177/160940691101000405

Van de Calseyde, P., Zeelenberg, M., & Evers, E. (2018). The impact of doubt on the experience of regret. *Organizational Behavior and Human Decision Processes, 149*, 97-110. https://doi.org/10.1016/j.obhdp.2018.08.006

van der Meer, T., Verhoven, P., Beentjes, H., & Vliegenthart, R. (2017). Communication in times of crisis: The stakeholder relationship under pressure. *Public Relations Review*, *43*(2), 426-440. https://doi.org/10.1016/j.pubrev.2017.02.005

van Manen, M. (2014). *Phenomenology of Practice: Meaning-Giving Methods in Phenomenological Research and Writing* (Vol. 13). Routledge. https://doi.org/10.4324/9781315422657

van Manen, M. (2017). But Is It Phenomenology? *Qualitative Health Research*. *27*(6):775-779. https://doi.org/10.1177/1049732317699570

van Manen, M. (2018). *Researching Lived Experience: Human Science for an Action Sensitive Pedagogy*, 2nd *edition.* State University of New York Press.

von Sivers, I., Templeton, A., Köster, G., Drury, J., & Philippides, A. (2014). Humans do not always act selfishly: Social identity and helping in emergency evacuation

simulation. *Transportation Research Procedia*, *2*, 585-593. https://doi.org/10.1016/j.trpro.2014.09.099

WA Local Government Association (2022). *Emergency Management.* https://walga.asn.au/policy-advocacy/our-policy-areas/emergency-management

Walter, N., & Tukachinsky, R. (2020). A Meta-Analytic Examination of the Continued Influence of Misinformation in the Face of Correction: How Powerful Is It, Why Does It Happen, and How to Stop It? *Communication Research*, *47*(2), 155-177. https://doi.org/10.1177/0093650219854600

Warner, J. (2021). Enschede cries – Restoring ontological security after a fireworks disaster, *International Journal of Disaster Risk Reduction, 59.* https://doi.org/10.1016/j.ijdrr.2021.102171

Willig, C. (2019). Ontological and epistemological reflexivity: A core skill for therapists. *Counselling and Psychotherapy Research*, *19*(3), 186-194. https://doi.org/10.1002/capr.12204

Wilson, J. P., Droždek, B., & Turkovic, S. (2006). Post-traumatic shame and guilt. *Trauma, Violence & Abuse*, *7*(2), 122-141. https://doi.org/10.1177/1524838005285914

Witte, K., & Allen, M. (2000). A Meta-Analysis of Fear Appeals: Implications for Effective Public Health Campaigns. *Health Education & Behavior, 27(*5):591-615. https://doi.org/10.1177/109019810002700506

World Economic Forum. (2022). *Climate Change*. https://www.weforum.org/topics/climate-change

World Health Organization. (2018). COP24 Special report: health and climate change. https://apps.who.int/iris/handle/10665/276405

World Health Organization (2020). COVID-19 Virtual Press Conference with Dr Michael Ryan. https://www.who.int/docs/default-source/coronaviruse/transcripts

World Health Organization. (2021). *WHO Guidance on Research Methods for Health Emergency and Disaster Risk Management*. https://apps.who.int/iris/handle/10665/363502

World Health Organization. (2022). *Infodemic*. https://www.who.int/health-topics/infodemic#tab=tab_1

World Health Organization. (2023). *Disasters and Emergencies*. https://www.who.int/teams/integrated-health-services/clinical-services-and-systems/surgical-care/disasters-and-emergencies

Zan, L. (2024). The asymmetric impact of decision-making confidence on regret and relief. *Frontiers in Psychology, 15*. https://doi.org/10.3389/fpsyg.2024.1365743

Zhang, X., Zeelenberg, M., Summerville A., & Breugelmans, M. (2021). The role of self-discrepancies in distinguishing regret from guilt. *Self and Identity, 20*(3), 388-405. https://doi.org/10.1080/15298868.2020.1721316

Zsido, A. N., Csokasi, K., Vincze, O., & Coelho, C. M. (2020). The emergency reaction questionnaire – First steps towards a new method. *International Journal of Disaster Risk Reduction*, *49*(2020), 101684, 1-9. https://doi.org/10.1016/j.ijdrr.2020.101684

LIST OF APPENDICES

APPENDIX 1: PARTICIPANT INFORMATION SHEET AND CONSENT FORM

PARTICIPANT INFORMATION SHEET AND CONSENT FORM

Project Title: Exploring the mental health impacts of making decisions during a natural hazard emergency event

Chief Investigator
Ms Joanne Hills
College of Nursing and Health Sciences
Flinders University
Tel: : (08) 8201 3911

Primary Supervisor
Professor Paul Arbon
College of Nursing and Health Sciences
Flinders University
Tel: : (08) 87221 8789

Secondary Supervisor
Associate Professor Amanda Muller
College of Nursing and Health Sciences
Flinders University
Tel: : (08) 8201 3378

My name is Joanne Hills and I am a Flinders University PhD student. I am undertaking this research as part of my Doctor of Philosophy. For further information, you are more than welcome to contact my supervisor/s, their details are listed above.

Description of the study
An abundance of research has been conducted into the impacts on mental health after a disaster, however, very little research has examined the psychological impact on a person who had to make a decision during the emergency, after emergency advice warnings were issued, particularly if there has been damage, or a loss of life, or property, as a result of the disaster. This study also explores factors that affect decision making and compliance in an emergency crisis situation when a decision has to be made, ie., what impacts these decisions; motivation, risk, experience, self-efficacy, mastery, perception etc. This project is supported by Flinders University, College of Nursing and Health Sciences.

Purpose of the study
The aim of this study is to determine what the psychological impact is on a person when they have had to make a decision during an emergency crisis situation. Specifically, exploring whether there are regrets or other emotions post the emergency, with the aim of determining what factors lead them to the decision they made, would they do things differently next time, any lessons learned and what other information did they need, to have made a different decision.

Benefits of the study
The sharing of your experiences will help to fill in some information gaps as to why people respond differently to emergency advice warnings and what the psychological impact is of doing so. This study is important because if it is found that the psychological impact of a person's decision making during the emergency crisis has had a detrimental effect on their wellbeing, the study can contribute towards future disasters, with better information and more positive outcomes

Participant involvement and potential risks
If you agree to participate in the research study, you will be asked to:

- Attend one or two, fifty minute interviews with a researcher that will be audio recorded. Interviews may be conducted face to face or online/phone (participation is entirely voluntary)
- respond to questions regarding your views about the emergency advice warnings, the situation and how you responded
- potentially a short follow up interview for clarification purposes (if required)

The researchers do not expect the questions to cause any harm or discomfort to you. However, if you experience feelings of distress as a result of participation in this study, please let the research team know immediately. You can also contact the following services for support:

- Lifeline – 13 11 14, www.lifeline.org.au
- Beyond Blue – 1300 22 4636, www.beyondblue.org.au
- Your local general practitioner

Withdrawal Rights
You may, without any penalty, decline to take part in this research study. If you decide to take part and later change your mind, you may, without any penalty, withdraw at any time without providing an explanation. To withdraw, please contact the Chief Investigator or you may just refuse to answer any questions at any time. Any data collected up to the point of your withdrawal will be securely destroyed.

Confidentiality and Privacy
Only researchers listed on this form have access to the individual information provided by you. Privacy and confidentiality will be assured at all times. The research outcomes may be presented at conferences, written up for publication or used for other research purposes as described in this information form. However, the privacy and confidentiality of individuals will be protected at all times. You will not be named, and your individual information will not be identifiable in any research products without your explicit consent.

No data, including identifiable, non-identifiable and de-identified datasets, will be shared or used in future research projects without your explicit consent.

Data Storage
The information collected will be stored securely on a password protected computer and/or Flinders University server throughout the study. Any identifiable data will be de-identified for data storage purposes unless indicated otherwise. All data will be securely transferred to and stored at Flinders University for at least five years after publication of the results. Following the required data storage period, all data will be securely destroyed according to university protocols.

How will I receive feedback?
On project completion, a short summary of the outcomes will be published on the Flinders University's website and a copy of this summary will also be made available via email if a participant wishes to receive a summary in this way and are willing to provide their email address to the research team.

Ethics Committee Approval
The project has been approved by Flinders University's Human Research Ethics Committee – project number 5269.

Queries and Concerns
Queries or concerns regarding the research can be directed to the research team. If you have any complaints or reservations about the ethical conduct of this study, you may contact the Flinders University's Research Ethics & Compliance Office team via telephone 08 8201 2543 or email human.researchethics@flinders.edu.au.

Thank you for taking the time to read this information sheet which is yours to keep. If you accept our invitation to be involved, please sign the enclosed Consent Form.

CONSENT FORM

Consent Statement

☐ I have read and understood the information about the research, and I understand I am being asked to provide informed consent to participate in this research study. I understand that I can contact the research team if I have further questions about this research study.

☐ I am not aware of any condition that would prevent my participation, and I agree to participate in this project.

☐ I understand my participation is entirely voluntary and that and that I am free to withdraw at any time during the study and any data collected up to the point of my withdrawal will be securely destroyed.

☐ I understand that I can contact Flinders University's Research Ethics & Compliance Office if I have any complaints or reservations about the ethical conduct of this study.

☐ I understand that my involvement is confidential, and that the information collected may be published. I understand that I will not be identified in any research products.

I further consent to:

☐ participating in the interview
☐ having my information audio recorded
☐ sharing my de-identified data with other researchers
☐ my data and information being used in this project and other related projects for an extended period of time (no more than 5 years after publication of the data)

Signed:

Name:

Date:

APPENDIX 2: ETHICS APPROVAL FORM

17 June 2022

HUMAN ETHICS LOW RISK PANEL

APPROVAL NOTICE

Dear Ms Joanne Hills,

The below proposed project has been **approved** on the basis of the information contained in the application and its attachments.

Project No: 5269

Project Title: The psychological impacts of disregarding advice in an emergency situation

Primary Researcher: Ms Joanne Hills

Approval Date: 17/06/2022

Expiry Date: 28/02/2025

Conditions of Approval: None

Please note: *Due to the current COVID-19 situation, researchers are strongly advised to develop a research design that aligns with the University's COVID-19 research protocol involving human studies. Where possible, avoid face-to-face testing and consider rescheduling face-to-face testing or undertaking alternative distance/online data or interview collection means. For further information, please go to* [https://staff.flinders.edu.au/coronavirus-information/research-updates.](https://staff.flinders.edu.au/coronavirus-information/research-updates)

RESPONSIBILITIES OF RESEARCHERS AND SUPERVISORS

1. Participant Documentation

Please note that it is the responsibility of researchers and supervisors, in the case of student projects, to ensure that:

- all participant documents are checked for spelling, grammatical, numbering and formatting errors. The Committee does not accept any responsibility for the above mentioned errors.
- the Flinders University logo is included on all participant documentation (e.g., letters of Introduction, information Sheets, consent forms, debriefing information and questionnaires – with the exception of purchased research tools) and the current Flinders University letterhead is included in the header of all letters of introduction. The Flinders University international logo/letterhead should be used and documentation should contain international dialing codes for all telephone and fax numbers listed for all research to be conducted overseas.

2. Annual Progress / Final Reports

In order to comply with the monitoring requirements of the *National Statement on Ethical Conduct in Human Research 2007 (updated 2018)* an annual progress report must be submitted each year on the approval anniversary date for the duration of the ethics approval using the HREC Annual/Final Report Form available online via the ResearchNow Ethics & Biosafety system.

Please note that no data collection can be undertaken after the ethics approval expiry date listed at the top of this notice. If data is collected after expiry, it will not be covered in terms of ethics. It is the responsibility of the researcher to ensure that annual progress reports are submitted on time; and that no data is collected after ethics has expired.

If the project is completed *before* ethics approval has expired please ensure a final report is submitted immediately. If ethics approval for your project expires please either submit (1) a final report; or (2) an extension of time request (using the HREC Modification Form).

For student projects, the Low Risk Panel recommends that current ethics approval is maintained until a student's thesis has been submitted, assessed and finalised. This is to protect the student in the event that reviewers recommend that additional data be collected from participants.

3. Modifications to Project

Modifications to the project must not proceed until approval has been obtained from the Ethics Committee. Such proposed changes / modifications include:

- change of project title;
- change to research team (e.g., additions, removals, researchers and supervisors)
- changes to research objectives;
- changes to research protocol;
- changes to participant recruitment methods;
- changes / additions to source(s) of participants;
- changes of procedures used to seek informed consent;
- changes to reimbursements provided to participants;
- changes to information / documents to be given to potential participants;
- changes to research tools (e.g., survey, interview questions, focus group questions etc);
- extensions of time (i.e. to extend the period of ethics approval past current expiry date).

To notify the Committee of any proposed modifications to the project please submit a Modification Request Form available online via the ResearchNow Ethics & Biosafety system. Please note that extension of time requests should be submitted prior to the Ethics Approval Expiry Date listed on this notice.

4. Adverse Events and/or Complaints

Researchers should advise the Executive Officer of the Human Research Ethics Committee on at human.researchethics@flinders.edu.au immediately if:

- any complaints regarding the research are received;
- a serious or unexpected adverse event occurs that effects participants;
- an unforeseen event occurs that may affect the ethical acceptability of the project.

Yours sincerely,

Camilla Dorian

on behalf of

Human Ethics Low Risk Panel
Research Development and Support
human.researchethics@flinders.edu.au

Flinders University
Sturt Road, Bedford Park, South Australia, 5042
GPO Box 2100, Adelaide, South Australia, 5001

http://www.flinders.edu.au/research/researcher-support/ebi/human-ethics/human-ethics_home.cfm