THE PREVALENCE OF TRAUMA SYMPTOMS AND COPING USED IN A DISASTER-AFFECTED COMMUNITY IN JOHANNESBURG, SOUTH AFRICA

COLLEEN ANN PARKINS

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Study leaders: Dr Tlou Raphela and Dr Edwin du Plessis

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DECLARATION

I, Colleen Ann Parkins declare that the mini-dissertation that I herewith submit for the degree qualification Master in Disaster Management at the University of the Free State is my independent work and that I have not previously submitted it for a qualification at another institute of higher education.

I further acknowledge that every source is acknowledged by in-text citing and included in a comprehensive reference list.

22 November 2021

Colleen Ann Parkins

Date

Student number: 2018256202

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ABSTRACT

Worldwide, the prevalence of trauma symptoms and coping mechanisms used in a disaster-affected community have received little attention, especially in developing countries. This study, therefore, assessed the prevalence of trauma symptoms and coping mechanisms in the Setswetla informal settlement located within the flood line of the Jukskei River in the Alexandra township, in the city of Johannesburg, South Africa. The area is subject to disasters such as floods and shack fires. This study used the Harvard trauma questionnaire to assess the prevalence of trauma symptoms in Setswetla, and the Brief Coping Orientation to Problems Experienced, known as the brief COPE questionnaire, to determine the coping mechanisms used in the community. The results of the study indicate that 86% of the respondents have experienced or witnessed a disaster, and there is evidence of trauma symptoms among them. Whether the respondent has witnessed a disaster, as well as their income and employment status, relates to the prevalence of trauma symptoms. The Brief COPE questionnaire indicates that respondents exhibiting symptoms of trauma use coping mechanisms. A questionnaire on the experience of the Setswetla community of the Covid-19 pandemic indicates difficulty with complying with the regulations meant to stop the spread of the virus, as overcrowding and shared facilities make social distancing difficult. Loss of livelihoods from the lockdown regulations and the pandemic is also a concern. While the scope of the dissertation does not include addressing poverty and the systemic failure of the mental health system at a national level, recommendations are made for managing trauma and stress at the community level. It is recommended that disaster management first responders, as well as community leaders and community disaster management volunteers, be trained in Psychological First Aid to render initial assistance in the event of a disaster or other traumatic event. It is also recommended that wellness and stress management programmes be introduced in the community to assist residents with alleviating symptoms of stress and trauma and starting conversations around mental health to address the stigma that is still prevalent around such issues. Addressing and preventing symptoms of trauma could lead to improved functioning in Setswetla on an individual and community level.

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ABBREVIATIONS AND ACRONYMS

ANOVA	Analysis of variance
BBC	Bogardi Birkmann Cardona (Framework)
COPE	Coping Orientation to Problems Experienced
DFID	Department for International Development
DOH	Department of Health
DMA	Disaster Management Act
IFAD	International Fund for Agricultural Development
IFRC	International Federation of the Red Cross and Red Crescent Societies
IRP	International Recovery Platform
KPA	Key performance area
NDMC	National Disaster Management Centre
PAR	Pressure and Release (Model)
PFA	Psychological first aid
PTSD	Post traumatic stress disorder
SADAG	South African Depression and Anxiety Group
SAHRC	South African Human Rights Commission
SDG	Sustainable Development Goal
SLF	Sustainable Livelihoods Framework
UN	United Nations
UNDP	United Nations Development Programme
UNDRR	United Nations Office for Disaster Risk Reduction
UNISDR	United Nations International Strategy for Disaster Reduction
WASH	Water supply, sanitation and hygiene
WCED	World Commission on Environment and Development
WHO	World Health Organization

CHAPTER 1
INTRODUCTION AND BACKGROUND OF STUDY

1.1 Introduction

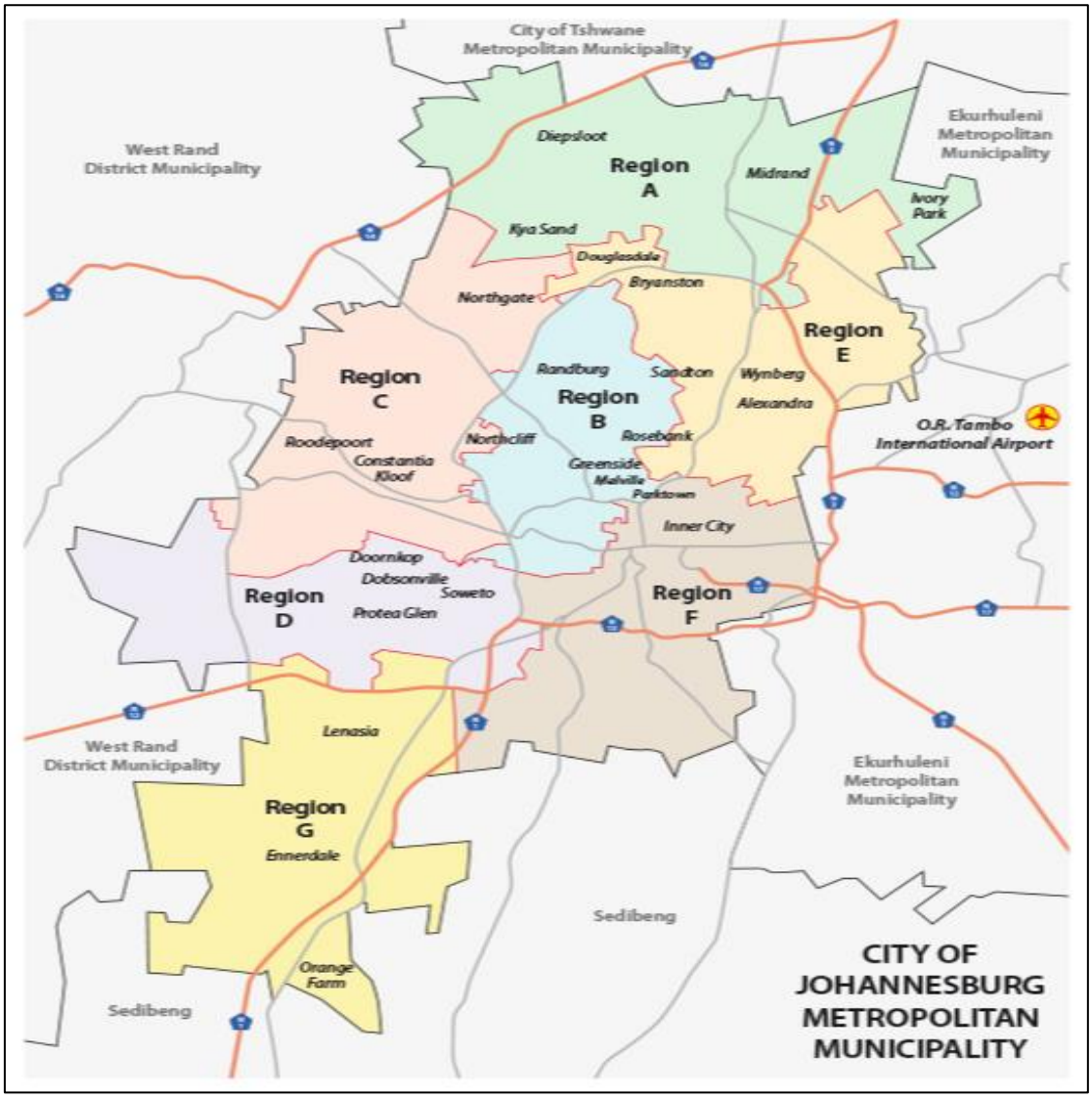
Disaster, by its definition, implies that there is an impact on the lives of the people in the affected area, be it in the form of personal injury, death or trauma, or in the form of an impact on the collective functioning of the community (South Africa 2002a). According to the United Nations (UN) guidance notes on psychosocial recovery (International Recovery Platform [IRP] and United Nation Development Programme [UNDP] 2010), all people who are involved in a disaster are impacted by it, to a greater or lesser extent. However, the trauma impacts that occur with disasters are in most cases ignored. Nevertheless, two types of trauma that may occur in a disaster situation might be physical and or mental trauma depending on the event. Mental trauma is the response of the mind to serious injury and can result in abnormal behaviour including fear, detachment, sleep disturbances, irritability and post-traumatic stress disorder (PTSD) (IRP and UNDP 2010). This is not always the case with mental trauma. In addition, the UN notes that the mental and/or psychosocial health of individuals is often not adequately considered in pre-disaster planning.

This research project, therefore, identified the prevalence of symptoms associated with psychological stress and trauma in a community that regularly experiences a high incidence of disasters. The purpose was to gain insight into the impact of disasters on the mental health of individuals and the community, and to identify the coping mechanisms utilised to deal with such disasters. For this purpose, the researcher investigated the Setswetla informal settlement, in the city of Johannesburg, which experiences floods, shack fires, and currently the Covid-19 pandemic. The study references the Sustainable Livelihoods Framework (SLF) (United Kingdom, Department for International Development [DFID] 1999) as a model into which recommendations around addressing mental health in disaster risk reduction can be incorporated.

1.2 Study area

This study was demarcated to the informal settlement of Setswetla, in Alexandra township, which is in Region E (shown in peach colour in the map below) of the City of Johannesburg

Metropolitan Municipality in the Gauteng province (Figure 1.1). The location of Setswetla within Alexandra is shown in Figure 1.2.



Source: Lesniewski (2019)

Figure 1.1 Position of Alexandra in Region E in the City of Johannesburg Metropolitan Municipality

Source: Google (2020)

Figure 1.2 Position of Setswetla informal settlement (yellow oval shape) in Alexandra township, Johannesburg, Gauteng province, South Africa.

1.2.1 Socio-demographic characteristics

Alexandra is an urban settlement with a population of 179 624 (Statistics South Africa 2011) which is located close to Sandton, an affluent area of Johannesburg. About 74% of the population live in formal dwellings. Setswetla informal settlement, where this study is demarcated, is a high-density informal settlement within Alexandra on the banks of the Jukskei River. While no formal census information is available for the area, it is estimated to consist of about 5 100 residents (Maphanga 2020), some of whom are foreign nationals. Several disasters have occurred in the Setswetla settlement, which includes shack fires and flooding of the Jukskei River (a significant flood occurred in 2016), which resulted in significant losses for residents. In addition to the disasters, which have been experienced so far, residents of the Setswetla settlements are also impacted by the global pandemic of Covid-19 (both the virus itself as well as the regulations to stop its spread). As such, there is the potential for symptoms of trauma and stress in individuals, which could influence the quality of life of the people and the effective functioning of the community. An existing level of anxiety, as a vulnerability factor for PTSD, is prevalent in this area, because of the recurring floods and shack fires. The study

aims to identify the prevalence of trauma symptoms caused by disasters that are occurring in this area and to explore the coping mechanisms used by the affected people.

1.3 Research problem

Mental health resources are considered to be scarce in South Africa (South Africa, Department of Health [DOH] 2013), and the extent to which mental trauma and psychosocial considerations and recovery are considered in disaster planning, relief and recovery in the South African disaster management process does not appear to be well-investigated, particularly in poor and vulnerable communities. While the assistance may be available to provide medical help for physical trauma and to attend to basic needs such as food and shelter, the mental and psychosocial needs of vulnerable people and communities are often not adequately met. This result in communities not being able to fully recover from the disaster or be optimally involved in the reconstruction and recovery processes.

Furthermore, the extent and effect of mental trauma in vulnerable people and communities affected by disaster are not adequately understood. Attention is given to the extent of the physical trauma in most disasters across the world. This could mainly be because of a lack of understanding of traumatic issues by first responders and also because most traumatic stress, such as PTSD can only be diagnosed a month after the incident has occurred (James and Gilliland 2017). Moreover, disaster risk reduction planning does not include the mental health of those affected by disaster and post-disaster recovery does not take the influence of psycho-social trauma into account in most cases. This, coupled with the lack of coping measures for mental health issues, are problems that require further investigation and contribution to the disaster management literature.

The potential prevalence of symptoms of trauma and stress in a community that has been impacted by one or more disasters, and the subsequent impact on the quality of life of individuals and the functioning of the community needs more investigation. Exacerbating the problem is the possibility of existing trauma that has the potential to heighten mental health problems in people affected by disasters.

1.4 Research questions

This study was designed to answer the following question:

What is the prevalence of symptoms associated with psychological stress and trauma exhibited by people in a disaster-affected community and what are the coping mechanisms used?

Sub-questions emanating from the main research questions are as follows:

- What is the level of awareness of trauma-induced mental health issues in the community?
- What mental health resilience, recovery or coping mechanisms are used in the community?
- What is the level of disaster awareness or preparedness in the community?
- Are the community aware that they are living in a disaster-prone area, and if so, why do they choose to live there?
- Are there any community sub-groups who are more affected by stress and trauma than others?

1.5 Study objectives

The main objective of this study was to assess the prevalence of trauma symptoms and coping strategies used in the Setswetla informal settlement in Alexandra township, in the city of Johannesburg, South Africa.

1.5.1 Sub objectives

This study will address the following sub-objectives derived from the aims and questions of the study:

- To assess the extent of the awareness of trauma-induced mental health issues in Setswetla informal settlement.
- To identify and assess the coping mechanisms of people in the Setswetla informal settlement.
- To assess the level of disaster awareness and preparedness in the community, particularly with regard to mental health.

- To assess the awareness of the residents of Setswetla that they live in a disaster-prone area, and to interrogate their reasons for staying there.
- To ascertain whether any community sub-groups are more affected by disasters than others.

1.6 Theoretical framework

The theoretical framework used in this dissertation is the Sustainable Livelihoods Framework (SLF) (DFID 1999). This framework was developed to understand and contextualise the livelihoods of poor communities, to use such information to reduce poverty. While the scope of this study does not incorporate all aspects of the framework, it uses the framework as a context into which mental health issues in a disaster-affected community could be considered.

The core of the SLF is the use of the five capitals to 'balance' the model. These capitals are:

- human capital;
- social capital;
- natural capital;
- financial capital; and
- physical capital.

The two capitals most relevant to this study are human capital and social capital. Trauma from disasters not only affects individuals, but also those around them, and a large-scale disaster could impact the social fabric of the community (Kleber 2019). In the context of the SLF, human capital focuses on the knowledge, skills, good health and ability to work of individuals in communities to achieve their desired livelihoods (DFID 1999). Symptoms of trauma, for example, loss of concentration, anxiety, fear, inability to sleep, and irritability (Kleber 2019), by their very nature have the potential to impact the skills, health and ability to work of affected individuals. Social capital is described in the SLF as the social resources which people draw upon to achieve their livelihood goals (DFID 1999). These resources include connections and social networks, group membership (formal or informal) and relationships and have a significant impact on the structures and processes which are developed and used within a community. Traumatic events such as disasters have the potential to affect relationships, the social environment and the broader community, and in extreme cases of disaster can lead to the breakdown of social networks and even migration out of an area (Kleber 2019). It is important

how trauma affects people in broader communities and how they cope. It must also be noted that the social environment can facilitate recovery after a traumatic event has occurred as strong social support reduces stress (Kleber 2019).

1.7 Research design and methodology

1.7.1 Philosophical world-view

Two general assumptions are relevant to most research that is undertaken. These are that the topic that is being investigated does not consist of random events and is, to some extent predictable; and certain observed patterns in the research are the result of cause and effect relationships (Leedy and Ormrod 2015). In addition, philosophical world-views influence how research is undertaken, and prevalent world-views include positivism, postpositivism, constructivism (Leedy and Ormrod 2015) and pragmatism (Kaushik and Walsh 2019).

The positivism perspective concludes that absolute truths about the cause and effect relationships in the research can be discovered when the correct measurement tools are used. This approach has been used predominantly by natural scientists (Leedy and Ormrod 2015). Postpositivism, used more frequently by social scientists, recognises that it is not possible to use true objectivity to find absolute truths, as it is likely that researchers will always bring bias of some sort into the research, and therefore the outcomes are expressed as probabilities rather than absolutes (Leedy and Ormrod 2015). Researchers subscribing to the constructivist world-view do not believe that it is possible to discover absolute truth and gravitate towards identifying subjective meaning within the data (Leedy and Ormrod 2015), and is often the philosophical word-view of those undertaking qualitative research (Kaushik and Walsh 2019).

The pragmatic world-view, which best suits the nature of this study, sidesteps the incorporation of absolute truth and reality and recognises that there can be more than one valid reality in the research, depending on the experience of the individual and the context of the research (Kaushik and Walsh 2019). Pragmatism allows the researcher to incorporate different methods and expects that researchers use the methodology or approach that is the most appropriate for the research problem under investigation. As such, this world-view is appropriate for mixed-method research, which is the methodology used in this research.

1.7.2 Research approach

The research is undertaken using a cross-sectional, analytical design that is mixed (quantitative and qualitative) in nature. A cross-sectional design is relevant for the nature and scale of a dissertation as the research data can be collected at the same time (Leedy and Ormrod 2015), in contrast to a longitudinal study which requires data collection over a longer period.

Qualitative and quantitative research essentially involve similar processes to achieve research outcomes, namely the identification of a research problem, literature review and the collection and analysis of data. Qualitative data involves the use of numerical information, and quantitative data is essentially non-numerical data, such as verbal information (Leedy and Ormrod 2015). Qualitative and quantitative data collection and analysis are not mutually exclusive, and it is possible to combine them into a mixed-methods design, which is the method used in this study.

1.7.3 Study population

The study was undertaken in South Africa, in the Gauteng Province, Region E of the city of Johannesburg in the Setswetla informal settlement. Setswetla is an informal settlement within Alexandra, comprising approximately 5 100 residents (Maphanga 2020).

1.7.4 Data collection

The researcher used questionnaires to gather data in Setswetla during December 2020. The questionnaires consisted of qualitative questions where respondents selected answers based on a Likert scale, as well as open-ended quantitative questions. While focus groups or interviews would have added value to the data collection process, the limitations on movement and gatherings imposed by the Covid-19 regulations in South Africa made this impractical at the time the research was carried out. A disadvantage of using questionnaires in research is the rate of return of the documents (Leedy and Ormrod 2015). This was addressed in the study by having the questionnaires handed out by the disaster management community volunteers, who then collected the completed questionnaires.

1.7.5 Data analysis

The data from the questionnaire were captured in an Excel spreadsheet (Microsoft Office 2016, Excel version 2002), then checked for reliability. Questionnaires were excluded if the trauma and coping questionnaires were not completed as the calculation of the numbers indicating

trauma or coping mechanisms would be skewed by missing data. Data were then coded in the spreadsheet for statistical analysis. The data were analysed by the Statistical Consultation Unit at the University of the Free State using the statistical software R (R Core Team 2018). Descriptive statistics were used for the frequency and ln (log to the base e) frequency of trauma, and inferential statistics, Chi-square and analysis of variance (ANOVA) (Zar 1984), were used to determine the significance of trauma within various groups.

1.8 Significance of the study

According to the UN, mental health is one of the most neglected aspects of the health care system (United Nations 2020). The subject of post-disaster psychosocial trauma and its impact on individuals and communities is considered to be of importance, but it does not appear to be high on the list of disaster management priorities, both in terms of pre-disaster preparedness planning as well as post-disaster rehabilitation and recovery. The Sendai Framework for Disaster Risk Reduction (SFDRR) encourages “building back better” after a disaster (United Nations, International Strategy for Disaster Reduction [UNISDR] 2015), and the Sphere Minimum Standards express the importance of using local people and resources in the rehabilitation and reconstruction process (Sphere Association 2018), but there appears to be little work done on the link between the psychological impact of the disaster, and the ability of those affected to effectively participate in the recovery process.

Mental health and substance abuse disorders are considered to be a leading global causes of disability (Ng, Stevenson, Kalapurakkel et al. 2020), with issues such as PTSD estimated to be a significant contributor to the global disease burden, affecting approximately 4% of the world’s population. However, most studies in disaster management do not consider mental disorder as an aftermath of disasters. PTSD causes a decline in human productivity and function, but is under-researched in sub-Saharan Africa, where people are exposed to a disproportionate level of trauma and could be at an increased risk of PTSD (Ng et al. 2020). According to Kaminer and Eagle (2010), it is unlikely that anyone residing in South Africa is immune to trauma given the high number of media reports on violence, crime and injury. Trauma can also result from domestic abuse, work-related accidents, the diagnosis of a life-threatening illness (for example HIV/AIDS), as well as from disasters such as fires, floods and epidemics.

There does not appear to be a lot of research done on the prevalence of trauma symptoms and coping mechanisms in informal communities that are affected by disasters such as floods,

shack fires and, more recently, Covid-19. The research will provide insight into such experiences, and has the potential to provide input to future community programmes which may be designed and implemented to reduce stress and trauma and strengthen resilience in these circumstances.

1.9 Limitations

This study is limited in that it only assesses the prevalence of self-reported trauma symptoms and coping mechanisms in a disaster-affected community, and will not assign any psychiatric diagnoses to individuals or the community after the reports. The reason for this is due to the study being undertaken in the field of disaster management, by a student who is not a psychologist and who therefore cannot make such diagnoses. The information collected and research outcomes may only apply to the community under consideration and cannot be reproducible to other communities, as issues of mental health, in particular, trauma is very unique and client or victim specific. The results of the study will be generalised so as not to expose individuals or the community at large to any potential risks of stigmatisation resulting from a study on mental health.

1.10 Delimitations

The study only considers the impact of exposure to disasters on the prevalence of self-reported trauma symptoms in the community. Other causes of trauma such as violent crimes, gender-based violence and accidents, which may impact the levels of trauma in the community have not been taken into consideration at this level of study. Such factors should be included should further work be undertaken on the impact of trauma and coping on individuals and the community.

1.11 Ethical considerations

According to Leedy and Ormrod (2015), the ethical implications of a study need to be considered before its commencement and should take into account issues such as protection from harm, informed and voluntary participation and the right to privacy of individuals taking part in the research. It is recognised that this study was undertaken in a vulnerable community. Ethical approval for this study was granted by the General/Human Research Ethics Committee of the University of the Free State (Approval number UFS-HSD2020/1433/0911). Written permission to collect data was obtained from the ward councillor of Setswetla, and the Region

E Disaster Management Centre provided assistance with access to the area and the distribution and collection of questionnaires. Participants in this study were informed about the voluntary nature of their participation, as well as the anonymity and confidentiality of individual responses. Participants were required to sign a consent form stating that they agree to the use of the information in the study and that they have the right to withdraw consent for the use of the information. All participants were required to be at least 18 years of age.

The names of the participants were kept confidential and do not appear on the questionnaires, and as such will be de-identified in the report. Separate reference sheets with the names of the participants, corresponding to the questionnaire numbers have been kept for record-keeping purposes, and to ensure that the questionnaire can be identified and linked to the participant administratively should the need arise (for example in the case of a query, or if the participant withdraws permission for use of the information).

It is recognised that the nature of the questionnaire is personal and had the potential to trigger trauma in respondents. All respondents were provided with information on how to access mental health assistance through the local resources in Alexandra (such as the Department of Social Development), as well as through the South African Depression and Anxiety Group which provides mental health resources through its website and call centre. The information leaflet is attached in Appendix F. The surveys were carried with the assistance of the city of Johannesburg Region E disaster management team and their community volunteers (contact person – Mr Sepheu Nkoele).

1.12 Chapter outline

This mini-dissertation consists of the following chapters:

1. The Introduction and Background. This chapter introduces the study to the readers and gives a brief background and outline of the methodology that will be adopted for this study.

2. The Theoretical Framework. This chapter describes one theoretical model and two frameworks commonly used in the disaster management context (PAR Model, BBC Framework and the Sustainable Livelihoods Framework) and elaborates on the choice of the SLF as the most relevant to the study.

3. The Legislative Review. This chapter describes local and international legislation, frameworks and standards relevant to the study. The South African legislation includes disaster management as well as mental health legislation, while the international documents considered include the Sendai Framework for Disaster Risk Reduction, the United Nations Sustainable Development Goals and the Sphere Standards.

4. The Literature Review. This chapter introduces the literature relevant to the study, and discusses mental health in disaster risk planning in South Africa, coping mechanisms, mental health in disaster risk reduction, mental health in disaster relief and recovery, community mental health in disaster management and coping mechanisms used in trauma recovery.

5. The Research Methodology chapter outlines the research process used in the dissertation and includes the research approach, the research design, a description of the study population, data collection tools and the data analysis process.

6. The Results and Data Analysis chapter presents the results of the study and discusses the findings of the research. The chapter includes demographics and socio-economic information of the study population and their exposure to disasters, results and discussion of the Harvard trauma questionnaire and associated statistical analysis, results and discussion of the abbreviated COPE questionnaire, as well as the discussion on Covid-19 in Setswetla.

7. The Conclusion and Recommendations summarise the findings and makes recommendations as to ways of increasing the awareness of disaster and trauma management in Setswetla (as well as other informal settlements), the application of the concept of psychological first aid to prevent progression to PTSD, as well as ways in which to improve mental health through stress reduction.

8. The references of all sources consulted are included at the end of the document.

CHAPTER 2
THEORETICAL FRAMEWORK

2.1 Introduction

The theoretical framework of the research examines theories and models that have already been published in the area of research, which can then be used as a framework in which the research of the current study can be analysed and interpreted (Mensah, Agyemang, Acquah et al. 2020). In this chapter, several existing models in the field of disaster management and poverty alleviation will be examined. The advantages and disadvantages of each model and framework will be considered in the context of the study, and the most appropriate model will be used to put the study into perspective. It is noted that, due to the broad base of such frameworks, all of them could conceivably be used for the incorporation of mental health, trauma and coping into disaster management planning. However, this study will run with one most relevant framework amongst the following models and frameworks.

The following disaster management model and three frameworks will be discussed in this study, however, the framework that this study adopted is the Sustainable Livelihood Framework:

- The disaster Pressure and Release model (PAR) (Wisner, Blaikie, Cannon and Davis 2004).
- The BBC Framework (Birkmann 2006).
- The Sustainable Livelihoods Framework (DFID 1999).

Before the models are presented, however, it is necessary to discuss several important concepts in disaster management, which is a key aspect of the models, frameworks and objectives of this study.

2.1.1 Vulnerability

Timmerman (1981), discussing vulnerability in the context of climatic variability, made the point that the exact definition of the concept is variable depending on the context. According to Wisner et al. (2004), vulnerability describes the extent to which a hazard will impact a community depending on how susceptible it is to the potential impacts of the hazard in question. Vulnerability to flooding, for example, may not necessarily be the same as vulnerability to an earthquake or wildfires, even though all these hazards can cause traumas to the affected.

Vulnerability is not simply marginalisation or poverty, and it cannot be subscribed to a population that is seen to be disadvantaged or at some form of risk (Cannon, Twigg and Rowell 2003). To properly assess vulnerability, a predictive aspect is required, and as such the outcomes of proper vulnerability assessments should have the result of livelihood enhancement, disaster risk reduction, institutional support and effective development aid interventions (Cannon et al. 2003). In the context of disaster management, it is not enough to study the hazard in isolation. For the hazard to develop into a disaster, it must impact groups of people who have varying degrees of disaster preparedness, resilience and coping capacity all of which contribute to the vulnerability of the group of people in question (Cannon et al. 2003).

2.1.2 Livelihoods

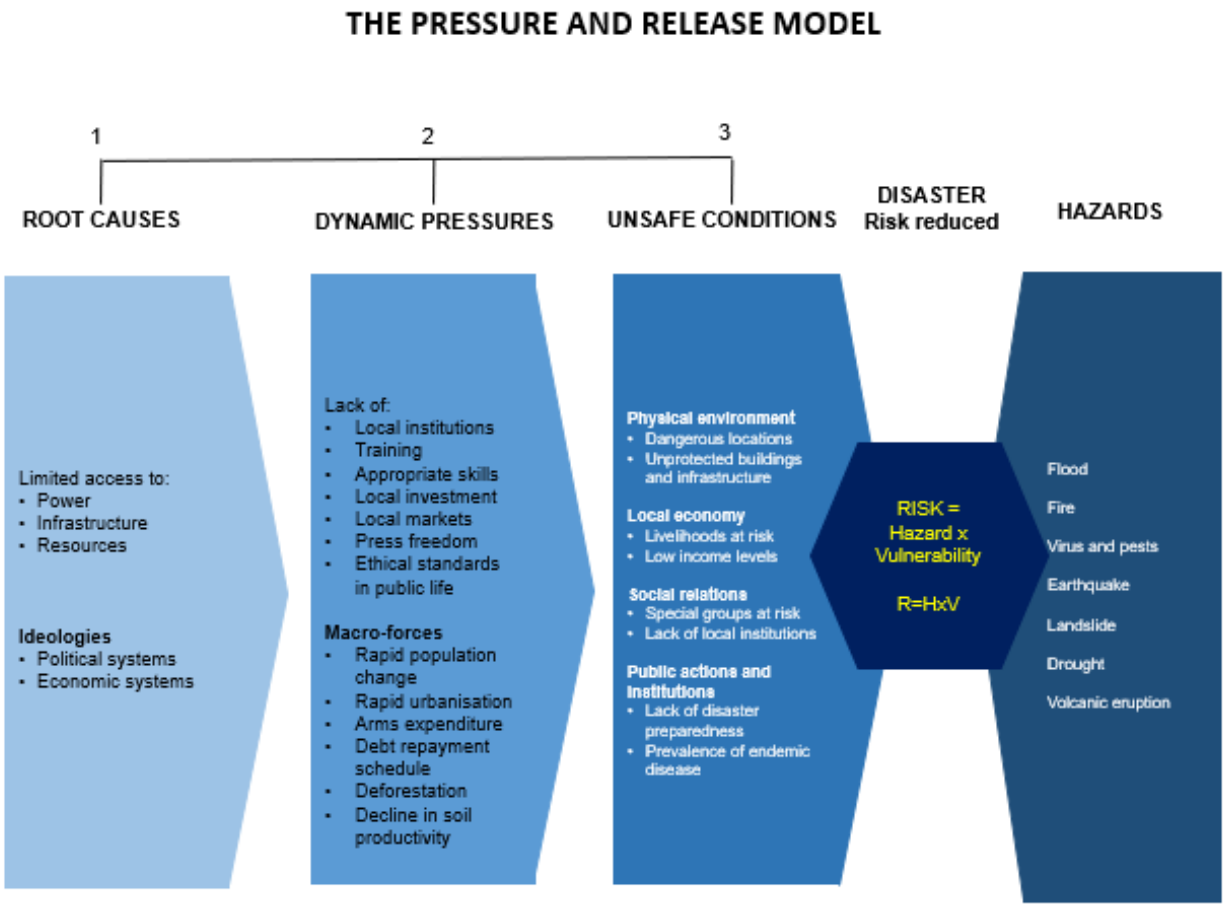
Livelihoods are important in the context of disaster management and the theoretical models discussed below. The UN Department for International Development (DFID) (DFID 1999), gives the following definition of sustainable livelihoods:

> *A livelihood comprises the capabilities, assets and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base.*

Sustainable livelihoods are important in the context of this study, as trauma has the potential to impact the individual as well as the community (Kleber 2019). The symptoms of trauma in the individual include memory problems, inability to sleep, fear, anxiety and loss of concentration (Kleber 2019), which impact the person's ability to function in daily life or at work. As human beings do not live and function in isolation, trauma extends beyond the individual to the group. A traumatic event experienced by one person affects the people close to them, and a disaster that impacts a larger area has the potential to affect the social fabric of the entire community (Kleber 2019). As such, trauma within individuals or a community can affect sustainable livelihoods by impacting the capabilities of individuals or the group to function optimally, as well as to steward the natural resource base appropriately. Mental health should be a key global priority in the achievement of sustainable development goals worldwide (Izutsu, Tsutsumi, Minas et al. 2015).

2.2 The Pressure and Release Model

The PAR model was developed by Wisner et al. (2004) in an attempt to understand risk in the context of their analysis of vulnerability. The PAR model is shown in Figure 2.1. The PAR model comprises three aspects that contribute to the “progression of vulnerability” of a community susceptible to a disaster. This model fits this study objective in that trauma caused by disasters progresses and talking about progression to vulnerability of the PAR model link well with how traumatised people progress to vulnerability, especially those people who will later develop PTSD because of the disaster they have experienced. In addition, the PAR model develops the *progression of vulnerability* from the root cause to the dynamic pressures and then on to unsafe conditions (Wisner et al. 2004).



Source: Wisner et al. (2004)

Figure 2.1 The Pressure and Release Model

2.2.1 Root causes

The root causes of a disaster (the furthest causes away from the hazard in the PAR model) are primarily the social, political and economic processes at play in the area under consideration (Wisner et al 2004), which enable vulnerability to become established in a community over time. The social, political and economic stability of a nation also has the potential to influence vulnerability at the root cause level. This reflects in the balance of power and can result in an unequal distribution of resources in the affected community.

Social determinants, including mental health, have an impact on vulnerability in a community and such issues can be addressed politically and economically (Nahar, Blomstedt, Wu et al. 2014), which could impact the root causes of a disaster.

2.2.2 Dynamic pressures

A process is required whereby root causes develop the hazard into unsafe conditions, which can result in the actualisation of a disaster. Such forces are the dynamic pressures in the PAR model (Wisner et al. 2004). Factors such as a shortage of relevant skills and training, restricted local markets and investments, limitations on freedom of the press and compromised ethical standards in governance are all examples of dynamic pressures. Other local issues, which can become dynamic pressures, include a rapid increase in population numbers in an area, accelerated urbanisation, current conflict, and environmental factors such as deforestation or a leaching out of soil nutrients.

Lack of awareness about mental health and its management at an individual and community level has the potential to increase the dynamic pressure in the context of this model. In some communities (particularly in developing countries), mental health carries a stigma that can affect the individuals with such disorders as well as their family, caregivers and the broader community (Matlala, Maponya, Chigome and Meyer 2018). Skills, training and awareness about mental health and trauma, and its inclusion in disaster management planning could reduce the dynamic pressures in the event of a disaster.

2.2.3 Unsafe conditions

Unsafe conditions are the specific ways in which the population is vulnerable in proximity to a hazard (Wisner et al. 2004). An example of this is how people live in unsafe conditions (for example sub-standard houses which may be vulnerable to earthquake damage) due to the

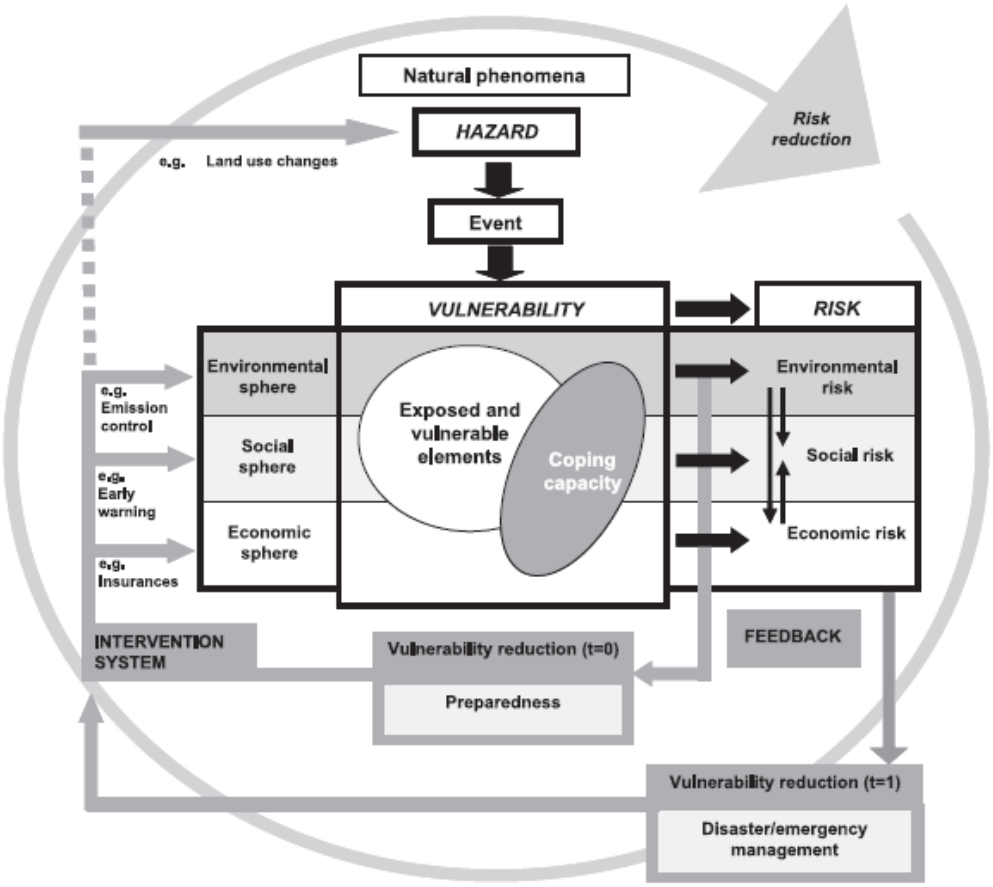
inability to afford proper housing or lack of enforcement of building standards by the government structures. In the context of this study, Setswetla is located within the flood zone of the Jukskei River, and the housing is in an unsafe place. Setswetla is also an informal settlement and as such, housing may be substandard and lack basic amenities such as the provision of in-house water, sewage and waste management.

The basis of the PAR model requires the intersection of two forces on a hazard to result in a disaster. These forces are: 1) the factors, processes or issues that facilitate vulnerability in an affected community, and 2) the natural hazard, which could evolve slowly (such as a drought) or occur rapidly (such as an earthquake). The “squeezing” effect of these opposing forces results in a disaster. The “release” element of the model acts as a pressure valve. As such, to prevent the disaster from being realised, a reduction of vulnerability to the hazard must occur. If this is the case, only one side of the “squeeze” will take place (the natural hazard) but a disaster will not result because the community concerned will not be vulnerable to its consequences.

The PAR model develops the *progression of vulnerability* from the root cause to the dynamic pressures and then on to unsafe conditions. According to Cutter, Barnes, Berry et al. (2008), the model is inadequate in addressing the interface between humans and the environment in relation to a hazard. The PAR model can be used to assess vulnerability in a community, and as a framework for a community to decide which risks are acceptable to it and which are not (Wisner et al. 2004). During such assessment processes, trauma and coping in the context of a disaster should be taken into account. In the context of this study, the PAR model may be applied but the selected SLF (discussed below) has more structure in which to consider mental health in the context of the capitals, which can consider the impact of trauma and coping on the individual, as well as the community.

2.3 The BBC Framework

The Bogardi/Birkmann/Cardona (BBC) framework was described by Birkmann (2006) and is shown in Figure 2.2. The holistic and pre-emptive BBC framework contains many connections and feedback loops, and aims to link the economic, social and environmental factors of sustainable development with human security and vulnerability in the context under consideration.



Source: Birkmann (2006)

Figure 2.2 The BBC Framework

The application of the BBC framework is intended to be pre-emptive and dynamic, and should not purely be based on events that have already occurred (Birkmann 2006). Scope for the integration of other models into the framework is also present, for example, the SLF (DFID 1999) can be incorporated into the social component of the BBC framework (Ardestani, Fisher and Balzter 2012). Aspects of the PAR model (as described above) (Wisner et al. 2004) and Turner's vulnerability framework (Turner, Kasperson, Matson et al. 2003), could also be incorporated into the BBC framework.

The concept of the BBC framework is that vulnerability cannot be considered in isolation in a human community, as people live within a natural environment and an economic context wherein they have livelihoods (Birkmann 2006). Layers or spheres of vulnerability also exist in these contexts, where there is a range from internal or individual vulnerability to vulnerability that is multi-dimensional (including social, economic, environmental, physical and institutional

vulnerability). Coping capacity is also taken into consideration along with vulnerability in this framework and is not included with risk.

Three types of risk are considered in the BBC framework, as opposed to the general definitions of “hard” and “soft” risk (Birkmann 2006). These include social, economic and environmental risks, which form the basis for sustainable development as defined by the Brundlandt report (Brundtland 1987). Mental health and trauma can be addressed as part of the social sphere or social risk aspect of the framework. Coping is not, however, integrated with the social risk aspect and is seen as part of the vulnerability aspect of the framework.

The BBC framework makes a distinction between risks that are identified before the occurrence of a disaster (which then require risk mitigation strategies and interventions), and risks which have occurred and therefore require disaster management (for example emergency response) (Birkmann 2006). The focus of the model is on preparedness rather than on emergency response.

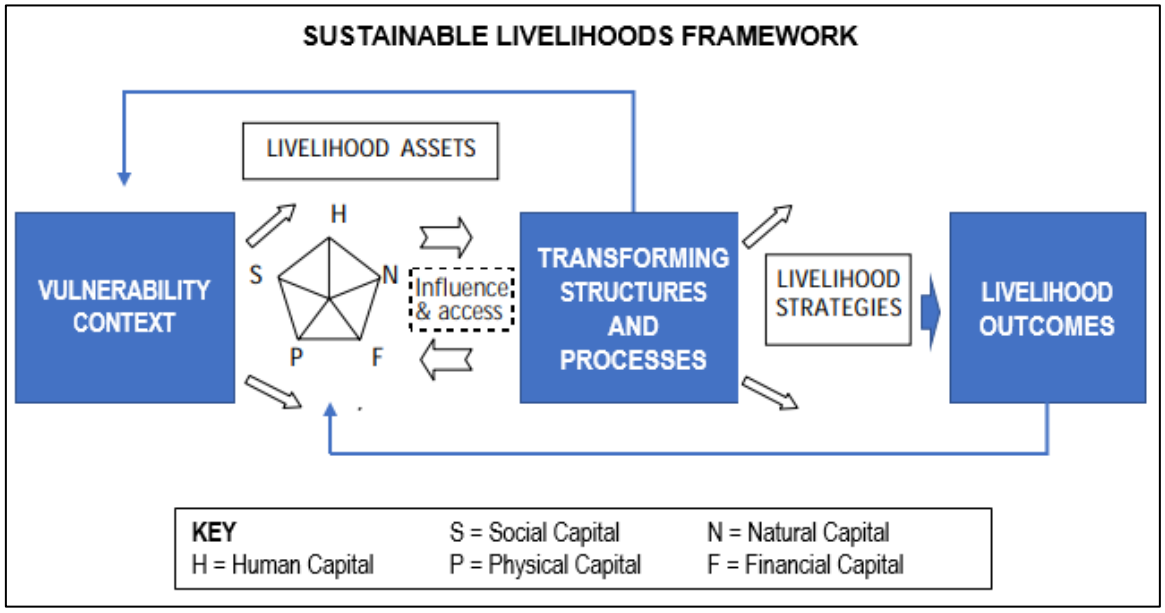
One of the main disadvantages of this model for this study is the focus on preparedness rather than on emergency response. While disaster preparedness and prevention is vitally important, there are aspects of trauma and coping which only occur after the disaster, and they are not uniformly applicable to all people and communities (that is, different people react differently to the same trauma). The model applied needs to have the capacity to include a strong component of emergency response to address trauma that may arise. The model functions with a feedback loop that continually looks at the effectiveness of the intervention systems which have been identified and implemented to mitigate the disaster risk, but these mitigations and preventive measures may not be the same for different disasters.

2.4 The Sustainable Livelihoods Framework

The SLF (DFID 1999) was specifically developed to facilitate the analysis of the livelihoods of poor communities where the particular purpose of the programme is to eliminate poverty (DFID 1999). The DFID acknowledges that the approach is a framework, and as such is a simplification and that the full picture of the livelihoods under consideration requires implementation at a local level. This means, however, that the framework can be applied at different levels (such as community and governmental) and that people on the ground can have input into the model. The model can also be applied to a disaster preparedness and response

scenario in addition to its usual purpose of poverty alleviation, the context of the framework is vulnerability.

The DFID (1999) defines livelihoods as consisting of the assets, capabilities and activities that are needed to live. Livelihoods are considered sustainable when they can absorb or recover from shocks and stressors, as well as retain or improve their assets in the present and future while maintaining their natural resource base. The SLF consists of livelihood assets, which are made up of five “capitals”, namely human capital, social capital, natural capital, financial capital and physical capital (DFID 1999), and is illustrated in Figure 2.3.



Source: DFID (2021)

Figure 2.3 The Sustainable Livelihoods Framework

2.4.1 The capitals

The SLF includes five capitals, which are described below, in order of importance for the present study. When considering mental health in the context of disasters, human and social capital are directly affected, while the other capitals can have an indirect influence.

Human capital in the SLF includes the factors that enable people to pursue and achieve their livelihoods, which are skills, knowledge, ability to work and health status (DFID 1999). This health status will include dealing and coping with trauma after a disaster has struck. Human

capital is an important consideration in the context of this study as mental health also has an impact on an individual's ability to work, skills development and general health. According to the DFID (1999), lack of education and ill health are considered significant contributors to poverty and regardless of the potential for disaster in a community should be among the most important objectives to consider when facilitating livelihood development.

Social capital is the social resources that people draw upon to achieve their livelihood goals (DFID 1999). These resources include connections and social networks, group membership (formal or informal) and relationships and have a significant impact on the structures and processes that are developed and used within a community. Traumatic events such as disasters have the potential to affect relationships, the social environment and the broader community, and in extreme cases of disaster can lead to the breakdown of social networks and even migration out of an area (Kleber 2019). How people in broader communities are impacted by trauma and how they cope are important. It must also be noted that the social environment can facilitate recovery after a traumatic event has occurred as strong social support reduces stress (Kleber 2019).

Natural capital is the natural resource base that is used to sustain livelihoods and includes resources such as land, wildlife and marine resources, biodiversity, water, air quality, storm and erosion protection and nutrient cycling (DFID 1999). As mentioned previously, trauma limits the capability of people to function optimally in their environment, and this has the potential to impact the natural resource base, as stewardship is not carried out adequately.

Physical capital consists of basic goods and infrastructure that are needed to sustain livelihoods and includes components such as transport, shelter, water supply and sanitation, clean energy and communication networks. Physical capital can be lost in the event of a disaster, which could also influence the trauma levels and recovery capability of affected people and communities.

Financial capital refers to the financial resources that are used by people to develop and sustain their livelihoods. Sources of financial capital include savings and investments, as well as inflows such as earnings or pensions (DFID 1999). As is the case for physical capital, financial capital can be affected by disasters such as loss of agricultural crops from floods or drought. As such, the mental health of people who have lost financial capital, as well as the costs required for recovery from a disaster can be negatively affected.

The SLF is a relatively flexible framework, and it has been used for the inclusion of other aspects of livelihoods that were not included in the original model, but which contribute to the functionality of individuals or the community. Examples of this include the consideration of spirituality and vulnerability (Hamilton-Peach and Townsley 2004), and the addition of political and cultural capital to the model (Ncube, Bahta and Jordaan 2019).

The reason for the inclusion of the SLF in this dissertation is to place the impact of disaster-related trauma into the context of a local community and its functioning. In a review on trauma and public and mental health, Kleber (2019) differentiates between the impact of traumatic events on the individual, as well as on the community. It is stated that most of the individuals in a community who experience a traumatic event do not go on to develop long-term post-traumatic stress disorder, although they may experience trauma symptoms in the aftermath of the disaster, depending on their personal levels of resilience.

The flexibility of the SLF is both an advantage and a disadvantage. The framework is not primarily a disaster management model, as its main intent is poverty reduction. As such, the disaster management aspects could be lost if the use of the model becomes too broad. An advantage is the inclusion of mental health and coping within specific capitals, and not as an aside, which could improve focus on the mental wellness so necessary for sustainable development.

CHAPTER 3
LEGISLATIVE REVIEW

3.1 Introduction

This chapter considers national legislation as well as international standards relevant to the study. The legislation and standards discussed focus on disaster management, as well as the inclusion of mental health in the disaster management context. South African legislation discussed includes the Disaster Management Act No. 57 of 2002, the South African National Disaster Management Framework, the Mental Health Care Act No. 17 of 2002 and the National Mental Health Policy Framework and Strategic Plan. International frameworks and standards include the Sendai Framework for Disaster Risk Reduction, the United Nations Sustainable Development Goals and the Sphere Standards.

3.2 South African legislation

3.2.1 Disaster management legislation

Disaster management is a relatively new concept in the South African context, with the promulgation of the Disaster Management Act, No. 57 of 2002 (South Africa 2002a), the Disaster Management Amendment Act, No 16 of 2015 (South Africa 2015) and the National Disaster Management Framework in 2005 (South Africa 2005). The Act gives effect to the formation of the National Disaster Management Centre, and the associated structures at provincial and municipal levels. While progress has been made in the establishment of disaster management structures, there is presently still room for more capacity and institutionalisation in this regard, with one of the weaknesses in the legislation being challenges with implementation at local level (Van Niekerk 2014).

Section 8 of the South African Disaster Management Act makes provision for the establishment of the National Disaster Management Centre, which is a public service institution. The National Disaster Management Centre's function is to facilitate an integrated disaster management system, which emphasises prevention and mitigation, and which includes national, provincial and municipal state organs, as well as communities and other role players (South Africa 2002a)

Disaster management in the country is structured in a tiered fashion, meaning that responsibilities for disaster management are taken at which the disaster can potentially occur, or has occurred. If it occurs at a municipal level, responsibilities are taken at a municipal level. If the municipality cannot deal with the disaster, it is elevated to provincial level. In the same manner, if a province is unable to effectively respond to a disaster it is elevated to the national level (South Africa 2005).

This study was conducted in Region E of the city of Johannesburg. The city has established a Disaster Management Centre and has compiled a Disaster Management Plan in alignment with disaster management legislation, and which considers disaster risk assessment and reduction, disaster management and disaster management (City of Johannesburg 2012). The top ten prevalent disaster hazards in Johannesburg that have been identified in the plan are:

- fires
- floods
- crime
- illegal electricity connections
- service delivery protests
- hijacking of buildings
- poverty
- lack of awareness and information
- inadequate drainage systems
- urban degradation.

Of these, fires, floods, crime and service delivery protests are seen as having the highest potental to escalate to the level of a disaster (City of Johannesburg 2012). A Disaster Management Advisory Forum is described in the document which has a number of sub-forums, which include business, health, environment, petrol and chemical, non-governmental organisations, a municipal cross-boundary forum and transport. The health forum comprises various stakeholders including municipal, provincial and national Departments of Health, hospitals (private and government), the Medical Research Institute of South Africa, private ambulance services and the South African Medical Corps. There is no inclusion of representatives (for example from the Department of Social Development, mental health

organisations or private professionals) to consider the impact of mental health during disaster risk planning, management and response.

The roles and responsibilities of internal stakeholders require the Group Head of Communications to arrange anniversary commemoration events to facilitate psychosocial coping of those affected, and the Executive Director of Health and Social Services is required to identify those affected by the disaster (victims or responders) who may require medical or psycho-social support, and arrange for such support (City of Johannesburg 2012). While the latter functions are relevant once a disaster has occurred, there are no plans in place to develop resilience in potentially affected communities and to facilitate awareness about disaster mental health during the disaster mitigation phase.

3.2.2 Disaster Management Framework

The Disaster Management Framework (South Africa 2005) provides a working framework for disaster risk reduction, management and response in South Africa. The framework comprises four Key Performance Areas (KPAs) and three Enablers, which are used to develop disaster management policy and planning at the national, provincial, district and municipal levels. The KPAs are:

- KPA 1: Integrated institutional capacity for disaster risk management;
- KPA 2: Disaster risk assessment;
- KPA 3: Disaster risk reduction; and
- KPA 4: Response and recovery.

The Enablers are as follows:

- Information management and communication;
- Education, training, public awareness and research; and
- Funding arrangements for disaster risk management.

Mental health can be considered at all stages of the disaster management process. The study is relevant in KPA 1, as it interrogates the capacity for mental health awareness, preparedness and response before, during and after a disaster. Mental health should also be considered in the disaster risk assessment phase (KPA 2), as the resilience and vulnerability of the affected communities should be taken into account as part of the risk assessment process. Processes to increase resilience and reduce vulnerability can be included in the risk reduction phase

(KPA 3), and mental health can be considered as part of the process of response and recovery (KPA 4).

There is a stigma regarding mental health and coping in many communities (DOH 2013), and the DOH acknowledges that there is a lack of information about mental health in general where the public is concerned. Enabler 2 is important in this regard as education, training and communication about mental health in the context of the development of resilience to disasters could facilitate knowledge-sharing about the subject. Such education and training are required across a diverse range of people such as the public, first responders and community leaders.

3.2.3 Mental health legislation

Mental health in South Africa is governed by the Mental Health Care Act, No 17 of 2002 (South Africa 2002b) which focuses on the care, treatment and rehabilitation of people in the country with mental illnesses. This act also makes provision for the administration of mental health care regarding establishments where people are cared for, care of people requiring admission to facilities and their administration. The act focuses on the matters of those who have already been diagnosed with mental illnesses, and there is no focus on the prevention of mental illness or consideration of factors that might lead to mental illness in future. The Mental Health Care Act and the Disaster Management Act are incongruous and neither takes mental health in the context of disaster management into account.

South Africa has a National Mental Health Policy Framework and Strategic Plan 2013–2020 (DOH 2013), wherein some of the challenges facing mental health in the country are outlined. These include:

- The underfunding or under-resourcing of mental health in the country compared to other health priorities, despite the high contribution of mental health to the burden of disease in South Africa.
- Inequality in the distribution of mental health resources and services between provinces.
- Insufficient public awareness where mental health and management is concerned.
- Widespread stigmatisation of those that have mental disorders.
- Lack of reliable data on mental health conditions and service provision.
- High reliance on an antiquated psychiatric health system, which emphasises the use of psychiatric hospitals and mediation management for treatment, instead of an emphasis on prevention.

The mental health care situation in South Africa is further complicated by co-morbidities such as tuberculosis (TB) and HIV/AIDS (DOH 2013), where the physical aspects of the diseases are treated and the mental health aspects are not taken into account.

As such, the consideration of mental trauma as part of disaster management appears to be in its infancy. An example is Setswetla, where the community can be considered vulnerable due to factors such as poverty, sub-standard housing, poor basis service delivery and comparatively low living standards. In addition, residents are exposed to hazards such as flooding, fires, and more recently Covid-19 and access to mental health is difficult in such communities in the event of a disaster. Exacerbating the problem is the precarious state of mental health care in South Africa in general, especially in poor and under-resourced communities. According to the Mental Health and Poverty Project (Mental Health and Poverty Project [MHaPP] 2008), there is a strong association between mental ill-health and poverty, with poor communities often lacking access to adequate mental healthcare. This contributes to the vulnerability of poor communities in the event of a disaster.

3.3 International legislation, standards and agreements

3.3.1 The Sendai Framework for Disaster Risk Reduction

The Sendai Framework for Disaster Risk Reduction 2015–2030 (UNISDR 2015) is the framework document that follows on from the Hyogo Framework for Action 2005–2015 (UNISDR 2005) and was adopted at the Third UN World Conference in March 2015 in Sendai, Japan. The Sendai Framework is considered to be a main global framework in the context of development, climate change and disaster risk reduction along with the Paris Agreement and the Sustainable Development Goals (International Federation of Red Cross and Red Crescent Societies [IFRC] 2020).

The Sendai Framework comprises guiding principles and priorities for action. Taking into account the circumstances of the nation under consideration, the guiding principles include disaster risk reduction responsibilities, management, co-ordination, societal engagement, empowerment of local authorities and communities, enhanced communication about disaster risks, identification and prioritisation of underlying risk factors, investment and local and international co-operation (UNISDR 2015). The four priorities in the Sendai Framework are:

1. Understanding disaster risk.
2. Strengthening disaster risk governance to manage disaster risk.

3. Investing in disaster risk reduction for resilience.
4. Enhancing disaster preparedness for effective response and to “Build Back Better” in recovery and reconstruction (UNISDR 2015).

While all of the priorities are important considerations in Setswetla, and the broader context of the city of Johannesburg, priority 3 (resilience) is a key focus of this study. The inclusion of resilience in the Sendai Framework has highlighted the concept in disaster risk research since the inception of the framework, leading to its increased inclusion, in theory, policy and practice (Saja, Teo, Goonetilleke and Ziyath 2021). Priority 4 is also important in the context of Setswetla, as the informal settlement is rebuilt in the same place following the loss of dwellings through floods and fire.

3.3.2 United Nations Sustainable Development Goals

The UN Sustainable Development Goals (SDGs) are the framework for the 2030 Agenda for Sustainable Development, which seeks to address the major global challenge of poverty (United Nations 2015). The eight Millennium Development Goals are the precursor to the SDGs (United Nations 2000) and have not been completely achieved, hence the formulation of the SDGs. The 17 goals include the economic, social and environmental dimensions of sustainable development, and are listed below (United Nations 2015). All of these goals apply to the study at some level, be it national, provincial or local. The SDGs, which have specific relevance to this particular study, are highlighted.

SDG 1 – End all forms of poverty. As will be shown later in the study, many of the people live in the Setswetla informal settlement because they are unable to afford anywhere else to live. Ending all forms of poverty has the potential to reduce the impacts of disasters significantly.

SDG 2 – End hunger, improve nutrition and food security, and the promotion of sustainable agriculture.

SDG 3 – Promotion of healthy living and well-being for all ages. SDG 3 is the goal where mental health is addressed, unlike the previous Millennium Development Goals where it was not considered (Thagunna, Chhetri, Basnet et al. 2021). Part of SDG target 3.4 is to promote mental health and well-being (United Nations 2015). Health should include mental as well as physical health, both in the context of disaster risk reduction as well as in normal life. This SDG is relevant to the study in terms of its focus on disaster-related trauma and coping in Setswetla,

as the promotion of mental health and wellbeing has the potential to increase resilience in the community.

SDG 4 – Equitable and quality education for all people, with the promotion of learning opportunities for all ages.

SDG 5 – Gender equality and the empowerment of women and girls.

SDG 6 – Availability and sustainable management of water and sanitation for all.

SDG 7 – Access for all to energy sources that are modern, affordable, sustainable and reliable. As will be shown in the study, a significant proportion of the respondents to this study have experienced shack fires. The provision of safe energy has the potential to reduce the impact of disaster risk in this community.

SDG 8 – Promotion of sustainable and inclusive economic growth, leading to decent work and productive employment for all. The study will show that a high proportion of the survey respondents are unemployed, and lack of resources is one of the reasons people live in the Setswetla informal settlement.

SDG 9 – Promotion of inclusive and sustainable industrialisation, encourage innovation and construction of resilient infrastructure. The houses in Setswetla are mainly poorly constructed, within the flood line of the Jukskei River, leading to loss of dwellings during floods.

SDG 10 – Reduction of inequality among and within countries. The reduction of inequality is a major consideration in South Africa at a national level.

SDG 11 – Cities and human settlements to be made safe, inclusive, sustainable and resilient. Setswetla, in its current form, cannot be described as a safe, resilient and sustainable place to stay due to high exposure to hazards such as fire and flooding, as well as due to a lack of service provision.

SDG 12 – Sustainable patterns of consumption and production.

SDG 13 – Urgent action is required to address climate change and the impacts thereof.

SDG 14 – Conservation and sustainable use of the oceans, seas and marine resources for sustainable development.

SDG 15 – Protection, restoration and promotion of sustainable use of terrestrial resources, including forest management, reversal of land degradation, combatting of desertification, and stopping the loss of biodiversity.

SDG 16 – Promotion of inclusive and peaceful societies, access to justice for all, and the establishment of accountable, inclusive and effective institutions at all levels. Such institutions include the establishment and effective functioning of disaster management centres at a national, provincial, district and municipal level.

SDG 17 – Revitalisation of the Global Partnership for Sustainable Development, and strengthening its means of implementation.

The SDGs are applicable at all levels of government, and their effective implementation could enhance disaster risk reduction, management and response across communities nationally, including Setswetla.

3.3.3 Sphere Humanitarian Charter and Minimum Standards

The aim of the Sphere Project, which commenced in 1997, is to improve the quality and accountability of humanitarian response in various organisations and contexts. Several non-governmental and humanitarian organisations, including the Red Cross and the Red Crescent Movement, started the project. The core beliefs of the project are:

> *People affected by disaster or conflict have the right to life with dignity and therefore, the right to assistance; and*
>
> *All possible steps should be taken to alleviate human suffering arising out of disaster or conflict* (Sphere Association 2018)*.*

The Sphere Minimum Standards comprise four main sections as follows:

- water supply, sanitation and hygiene promotion;
- food security and nutrition;
- shelter and settlement (including non-food requirements such as clothing); and
- health.

The Sphere Humanitarian Charter and Minimum Standards are published in the Sphere Handbook (Sphere Association 2018). The aim of the Sphere Project is to improve the quality

and accountability of humanitarian response in various organisations and contexts. The health section of the standards is relevant to this study at the reduction and response phases of the disaster management cycle, which should include mental health and wellbeing, as well as physical health.

The inclusion of mental health in the prevention stage of the disaster management cycle should focus on building resilience, including education and information around mental health and wellbeing, and stress reduction. Mental health should also be included in the response phase of the disaster management cycle for all exposed to or impacted by the disaster such as the affected communities as well as families and first responders. A range of interventions can be included such as PFA (which is applicable in the immediate crisis situation, to many people), as well as crisis therapy which is required at a later stage to a smaller group of affected people (James and Gilliland 2017).

3.4 Conclusion

A wide range of legislation, frameworks, standards and policies is available to address disaster risk reduction, management and response at all levels, from global to national, district, municipal and community levels. The challenge, it appears, is the effective implementation of such processes, which could significantly improve the lives of people living in informal settlements such as Setswetla.

CHAPTER 4
LITERATURE REVIEW

4.1 Introduction

This chapter outlines the literature consulted with regard to the body of knowledge on the subject of mental health in the context of poverty and disaster management. The World Health Organization (WHO) recognised psychosocial wellbeing and mental health as integral to human health in 1978, and the UN has addressed this aspect of health in various resolutions (Dybdahl and Lien 2017). Mental health has not, however, featured prominently on the global agenda until fairly recently, when it was included as part of SDG 3 (United Nations 2015). The WHO has compiled a Comprehensive Mental Health Action Plan 2013–2020, which also addresses global action plans for mental health (WHO 2013).

In a policy brief on Covid-19 and the need for mental health interventions, the UN (United Nations 2020) states that one of the least considered areas of health is mental health, with an average of only 2% of national health budgets being spent in this area, despite its personal and societal impacts. In terms of international development, less than 1% of health assistance is allocated to the area of mental health (United Nations 2020).

Mental health in the context of disaster management was recognised by the American Red Cross in the early 1990s, at which time they started a mental health certification programme after hurricane Hugo and the Loma Prieta earthquake in 1989 (James and Gilliland 2017), but there is still a gap in disaster management for further emphasis on mental health in disaster risk reduction, response and recovery.

This literature review considers the following aspects of the study:

- the impact of mental illness on poor communities;
- the status of mental health management in South Africa;
- mental health in disaster risk reduction;
- mental health in disaster risk response;
- mental health in disaster recovery;
- coping mechanisms;

- community mental health and disaster management; and
- the impact of Covid-19 on the mental health landscape.

4.2 The impact of disasters on mental health in poor communities

Mental health is defined by the WHO (2013) as a state of wellbeing wherein a person realises their abilities, can work productively, can cope with the normal stresses of life and can contribute to their community. Societal, economic, cultural, political and environmental factors also have the potential to affect the mental health of an individual and communities in that they impact standards of living, working conditions and social support. Groups that are considered to be at a higher risk of mental health problems include those living in poverty, children who are exposed to adversity at an early age or maltreated or neglected, people who have suffered human rights violations, people who have been exposed to conflicts and those exposed to natural disasters or humanitarian emergencies (WHO 2013). Other trauma exposures in South Africa include political violence, criminal violence, gender-based violence, physical abuse, non-intentional injury (for example accidents) and indirect traumatisation through exposure to or witnessing traumatic events, or the trauma of others (Kaminer and Eagle 2010). As such, the residents of Setswetla are potentially at a high risk of exposure to mental disorders given their living conditions and exposure to hazards such as fire and floods, besides other potential traumatic occurrences.

Poverty also has a direct impact on mental health through factors such as malnutrition, which can lead to impaired brain development and future intellectual or physical disability (Dybdahl and Lien 2017). According to Votruba and Thornicroft (2015), one person in four is affected by a mental health problem in their lifetime, and 85% live in low or middle-income countries. In addition, people in this situation face discrimination and stigma in society. As such, an individual's ability to contribute to the functionality of their community may also be impaired.

In the context of disaster management, a disaster can occur when a community is unable to cope with the realisation of a hazard. Where a population is vulnerable to a hazard due to a factor such as poverty, the disaster has a higher chance of occurring (IFRC 2020). Hazards can, to some extent, be prevented from becoming disasters by reducing the risk factors that cause vulnerability to disasters, and building resilience (Wisner et al. 2004). Urbanisation also plays a role in the exposure of poor communities to disasters, for example, more than 80% of people worldwide who are at risk of displacement by flooding live in urban or peri-urban areas

(IFRC 2020). Many of these people live within flood zones (as is the case in Setswetla) because their options are limited with regard to safe areas to live in. Poverty, therefore, increases vulnerability to disasters, and in combination with the mental health impacts of disasters, can harm the functioning of individuals and communities.

4.3 The status of mental health management in South Africa

The DOH in South Africa has recognised that there are challenges in mental health management in the country, which include a high prevalence of mental disorders caused by factors such as violence, substance abuse, poverty and unemployment (DOH 2013). Mental health management is under-resourced, and services are unequally distributed within the population. As discussed in Section 3.2, mental health is not adequately considered in the disaster management process in South Africa.

The South African Human Rights Commission (SAHRC) undertook an investigative hearing into the status of mental health care in South Africa on 14–15 November 2017 (South African Human Rights Commission 2017). Key findings of the report include that there has been underinvestment, as well as prolonged and systemic neglect of the implementation of mental health policy in South Africa. The focus of mental health care in the country is on psychiatric treatment for existing mental health conditions in expensive facilities, and little attention is given to primary mental health care at community level. According to Pillay (2019), if only crime and motor vehicle accidents are considered as trauma sources in the country, it is possible that 60% of South Africans could present with symptoms of PTSD. This does not take into account trauma experienced as a result of disasters, which would exacerbate this number as people exposed to disasters are potentially also exposed to crime and accidents. In addition, of those with severe mental illness in the country, only 27% receive treatment (Pillay 2019).

It is within this mental health care landscape that the effects of disaster-related trauma must be considered at all phases of the disaster management cycle.

4.4 Mental health in disaster risk reduction

Several aspects of mental health can be considered in the context of disaster management. In the risk reduction phase, mental ill health in the community that could potentially be affected increases vulnerability and could exacerbate the effects of a disaster on the people concerned. Measures to mitigate the disaster also have the potential to affect the mental health of the

community. An example of this is the current lockdown regulations implemented to curb the spread of COVID-19, which have the potential to cause stress, depression and anxiety (Omary 2020). Disasters could affect the mental health of individuals and the community, which could lead to difficulty in recovery for both individuals and the community. Disasters may affect individuals and the collective social structure of the community in different ways. Extended evacuation periods or long reconstruction periods impact the social fabric of a community, and this is influenced by the mental condition of the people affected.

The exposure of people to one or more events in their lifetime that are traumatic or life-threatening has the potential to impact their mental health (Kc, Gan and Dwirahmadi 2019). Stress is a part of daily life and resilience, while important, does not imply the avoidance of stress but rather the ability to "bounce back" from stressful situations. Kc et al. (2019) state that resilience is important for the recovery of psychosocial trauma associated with natural disasters, and that building resilience in the disaster reduction phase can prevent mental health issues if a hazard is realised.

McFarlane and Williams (2012) emphasise that mental health and psychosocial resources should be put in place so that they can be mobilised during times of disaster. They make the point that normal facilities available to civil society are inadequate in times of disaster and that additional resources are required. They also suggest that it is difficult to bring disaster-related mental health issues to the attention of politicians and health authorities in terms of short, medium and long-term mental health provisions for disaster management. They caution that in the immediate aftermath of a disaster there is a public outpouring of sympathy, with associated aid and assistance, however, mental health issues need attention in the long-term and this needs to be planned.

There will be several people in an area affected by a disaster that already have a mental health condition. Some people may not be physically well and are more vulnerable to the mental effects of a disaster. It is important to be able to distinguish between affected groups, and people who present with psychiatric disorders purely as a result of the disaster (McFarlane and Williams 2012).

4.5 Mental health in disaster risk response

Crisis intervention in the event of a disaster with respect to mental health can be broken down into two phases. These include first-order intervention, which takes place in the direct aftermath

of a disaster, and second-order intervention, which includes crisis therapy (James and Gilliland 2017). First-order intervention is generally required for a broad range of people impacted by the disaster, while second-order intervention involves specific psychological therapy by trained professionals. This section will focus on first-order intervention within the disaster response phase.

It is important that psychosocial assistance be made available immediately after a disaster (McFarlane and Williams 2012), and it is vital that people be made to feel safe. People with low incomes and low social support also appear to have a higher risk of mental trauma following a disaster (Cherry, Sampson, Nezat et al. 2015). PFA is a process that is increasingly being used in the aftermath of disasters or terrorism incidents (James and Gilliland 2017). PFA appears to be under-utilised in the current South African disaster management context, where its use could potentially assist with the alleviation of symptoms of trauma at the time of the disaster, and as such reduce the risk of the development of PTSD in the months following the disaster. The process of PFA includes eight steps (James and Gilliland 2017) as follows:

1. Engagement and contact – connection with survivors or those affected by a disaster, either through initiating contact, or responding to contact initiated by someone requiring assistance. The contact is made in a manner that is compassionate, helpful and non-intrusive.

2. Comfort and safety – to ensure that the person is immediately physically safe and to provide comfort emotionally.

3. Stabilisation – this step is used where affected people may be disoriented or emotionally overwhelmed, and includes calming and orienting.

4. Information on immediate concerns and needs – find out what the immediate needs and concerns of survivors are (for example clothing, shelter, finding loved ones) and plan the psychological first aid process accordingly.

5. Practical assistance – practical help in addressing the immediate needs and concerns that have been identified.

6. Social support connections – establish contact with people who can provide primary support to the affected person, and assist with locating family members, friends, community members and mobilising community resources.

7. Information on coping – to give the person information about stress reactions (it may involve reassurance that the symptoms they are feeling are normal under the circumstances), about what to expect and how to cope to reduce distress and restore functioning.

8. Linkage with collaborative services – linking people with services they need at present, or may need in future (could include medical assistance or future resources for counselling).

It is noted that PFA is not meant to be curative, and some survivors may require further assistance (James and Gilliland 2017). Not all people who are involved in a disaster need psychosocial support, but PFA is a non-intrusive way of providing immediate assistance when the extent of future psychological intervention is unknown.

Reliable information is also useful in immediate disaster response. The media can also play a role in providing information and providing culturally appropriate information to the population (IRP and UNDP 2010).

4.6 Mental health in disaster recovery

According to the UNISDR Guidance Note on Psychosocial recovery (IRP and UNDP 2010), there are several key concepts of disaster mental health. This includes: the consideration of the individual and community trauma; the ability of people to function during and after a disaster and their subsequent decline in effectiveness caused by the event; grief and stress are normal reactions to a disaster; disaster relief may not make immediate sense to survivors; survivors do not think that they need mental health evaluation and will not seek assistance; survivors may reject assistance; assistance must be culturally appropriate; assistance is often practical rather than psychological; the phase of the disaster must be taken into account when planning interventions; and survivors are responsive to genuine interest and concern.

Survivors of disasters tend to gravitate towards their own support networks, where possible, which should be encouraged (McFarlane and Williams 2012). Issues such as stigma and shame associated with seeking help for trauma need to be managed so that people can get the help that they need to recover.

In 2015, Nepal was the site of two major earthquakes. This resulted in the disruption of the country's socio-economic system and an increase in the number of mental health issues in the post-disaster phase (Kc et al. 2019). Depression, stress and anxiety were present in the worst-hit communities for months after the events, and it was found that about 24% of survivors had symptoms of PTSD after the event. Kc et al. (2019) make the point, however, that despite challenges in disaster preparedness and response, communities in Nepal have a culture-based resilience, where there were assistance, strong communication and problem-sharing within families and neighbourhoods, which contributed to the psychological impacts of the events being less than expected given their magnitude. Resilience building in this manner could be a challenge in communities such as Setswetla where the community is far more fluid as people move to Johannesburg from different parts of the country or continent to look for economic opportunities.

4.7 Coping mechanisms

According to McFarlane and Williams (2012), the global frequency of disasters is increasing, with an average of one disaster occurring daily. The psychopathology following a disaster is caused mainly by stress, which affects people differently and can lead to mental health problems such as grief and distress, while depression and anxiety disorders (such as PTSD) may also occur (McFarlane and Williams 2012; Maheshwari, Yadav and Singh 2010). However, the ability to cope with the stress associated with trauma and disasters can play an important role in determining the mental wellness of an individual (Botha and Du Plessis 2019). Coping can be defined as "constantly changing cognitive and behavioural efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of a person" (Lazarus and Folkman 1984:141). Coping, however, is not just related to the demands of a situation but is also determined by the extent of the resources available to a person (Botha and Du Plessis 2019; Compton 2005).

There are several coping styles that can be grouped into three subtypes: (i) those in which a person attempts to change negative emotions; (ii) those in which a person attempts to change the situation that caused the stress; and (iii) those that seek to avoid the problem. These are called emotion-focused coping, problem-focused coping, and avoidance (Botha and Du Plessis 2019; Compton 2005). In addition to assessing the prevalence of trauma symptoms, this study also seeks to identify the coping mechanisms used by individuals in disasters affected communities to mitigate the impact of such disasters on the mental health of individuals.

4.8 Community health and disaster management

The definition of a disaster is expanded in the sociological context to include the experience of people and their reaction to the event in question (Gill 2007). This means that a disaster does not only comprise the damage that a hazard may cause such as the destruction of buildings and infrastructure but it is further defined by the social context in which it takes place. A major disaster has the potential to change the social order and territorial development from its pre-disaster form (Gotham and Cheek 2018), and existing trends in the context can be accelerated for example, inequality, segregation and access to resources.

Mental and physical trauma can occur in individuals in the disaster scenario. According to Gill (2007), secondary trauma can also take place in the event of a disaster, which is caused by a "loss of communality", caused by the shock of being suddenly removed from the normal community context. This can be exacerbated by prolonged evacuations, or reconstruction taking a long time, causing social disruptions in a community, and can be difficult to quantify and understand (Gill 2007).

4.9 The impact of Covid-19 on the mental health landscape

The global Covid-19 pandemic appears to have sparked discussion on the mental health impacts of the pandemic, because of the virus itself as well as the measures implemented to stop the spread such as lockdowns and limitations of social gatherings and interactions. The impact of Covid-19 on the mental health of South Africans cannot be considered out of the mental health context in which the pandemic occurs, as the existing mental health gap has been increasingly highlighted (Nguse and Wassenaar 2021). The pandemic has had a particularly negative effect on poor communities, as they are marginalised in terms of access to healthcare and subject to the economic constraints of the pandemic.

The Covid-19 pandemic has had a significant negative effect on the mental health of South Africans in many ways (Nguse and Wassenaar 2021), including PTSD, anxiety, depression, fear and obsessive-compulsive behaviour. In addition, people who had experienced trauma prior to the pandemic could be pre-disposed to developing symptoms of trauma.

Covid-19 has had a global impact, including on mental health. Polish researchers Sekowski, Gambin, Hansen et al. (2020) recommend that survivors of Covid-19 be regularly screened for PTSD, particularly those who were hospitalised with serious complications. In India, the

lockdown was found to harm the mental health of individuals, with an increase in stress, anxiety and depression (Kazmi, Hasan, Talib and Saxena 2020).

It is increasingly evident that Covid-19 has had a global impact on mental health, affecting those who have contracted the virus as well as those who have been subject to lockdowns and restrictions. However, this may ignite a conversation of the importance of mental health and wellbeing that destigmatises stress and trauma recognition and facilitates recovery and wellness.

4.10 Chapter summary

The literature review gives an overview of the context in which the study was executed within the disaster management discipline. The impact of mental illness on disasters is discussed, leading to a summary of the current status of mental health care in South Africa. The consideration of mental health at all phases of the disaster management cycle includes the disaster risk reduction phase (where resilience is important), the disaster response phase (where PFA is considered) and the rebuilding phase. Coping mechanisms are further discussed as applicable to the study. As mental health in disasters affects not only the individual but also the community as a whole, community health and disaster management is included. As the study was undertaken during the Covid-19 pandemic, the impact of the virus and the measures taken to prevent its spread are discussed, particularly with regard to mental health.

CHAPTER 5
RESEARCH DESIGN AND METHODOLOGY

5.1 Introduction

This chapter details the philosophical world-view of research applied to this study, the research approach, research design and methodology used for this study.

5.2 Philosophical world-view

Two general assumptions are relevant to most research that is undertaken. These are that the topic that is being investigated does not consist of random events and is, to some extent predictable; and certain observed patterns in the research are the result of cause and effect relationships (Leedy and Ormrod 2015). In addition, philosophical world-views influence how research is undertaken, and prevalent world-views include positivism, postpositivism, constructivism (Leedy and Ormrod 2015) and pragmatism (Kaushik and Walsh 2019).

The positivism perspective concludes that absolute truths about the cause and effect relationships in the research can be discovered when the correct measurement tools are used. This approach has been used predominantly by natural scientists (Leedy and Ormrod 2015). Postpositivism, used more frequently by social scientists, recognises that it is not possible to use true objectivity to find absolute truths, as it is likely that researchers will always bring bias of some sort into the research, and therefore the outcomes are expressed as probabilities rather than absolutes (Leedy and Ormrod 2015). Researchers subscribing to the constructivist world-view do not believe that it is possible to discover absolute truth and gravitate towards identifying subjective meaning within the data (Leedy and Ormrod 2015), and is often the philosophical world-view of those undertaking qualitative research (Kaushik and Walsh 2019).

The pragmatic world-view, which best suits the nature of this study, sidesteps the incorporation of absolute truth and reality and recognises that there can be more than one valid reality in the research, depending on the experience of the individual and the context of the research (Kaushik and Walsh 2019). Pragmatism allows the researcher to incorporate different methods and expects that researchers use the methodology or approach that is the most appropriate for the research problem under investigation. As such, this world-view is appropriate for mixed-method research, which is the methodology used in this research.

5.3 Research approach and design

The research is undertaken using a cross-sectional, analytical design that is mixed (quantitative and qualitative) in nature. A cross-sectional design is relevant for the nature and scale of a dissertation as the research data can be collected at the same time (Leedy and Ormrod 2015), in contrast to a longitudinal study which requires data collection over a longer period. The research design uses stratified random sampling (Leedy and Ormrod 2015) where questionnaires were distributed in different parts of Setswetla.

Qualitative and quantitative research essentially involve similar processes to achieve research outcomes, namely the identification of a research problem, literature review and the collection and analysis of data. Qualitative data involves the use of numerical information, and quantitative data is essentially non-numerical data, such as verbal information (Leedy and Ormrod 2015). Qualitative and quantitative data collection and analysis is not mutually exclusive, and it is possible to combine them into a mixed-methods design, which is the method used in this study.

5.4 Study population and sample size

The study was undertaken in South Africa, in the Gauteng Province, Region E of the city of Johannesburg. Setswetla is an informal settlement within Alexandra, comprising approximately 5 100 residents (Maphanga 2020). The study population is the adult residents of the Setswetla informal settlement in Alexandra, and no children under the age of 18 participated in the study. Community volunteers co-ordinated by the disaster manager for Region E, city of Johannesburg, Mr Sepheu Nkoele assisted with distributing and collecting the questionnaires throughout the Setswetla community. The community volunteers were trained on the questionnaires before distribution and were available to assist with clarification of questions. The questionnaires were not translated due to the diversity of languages in the area. A total of 375 questionnaires were distributed within the Setswetla community. Respondents were verbally invited to participate in the study and gave permission for their information to be used anonymously in the study.

The sample size was determined using the online Raosoft sample size calculator (Raosoft 2004). The margin of error was set at 5% for the study with a confidence level of 95%. The calculation outcome is shown in Figure 5.1.

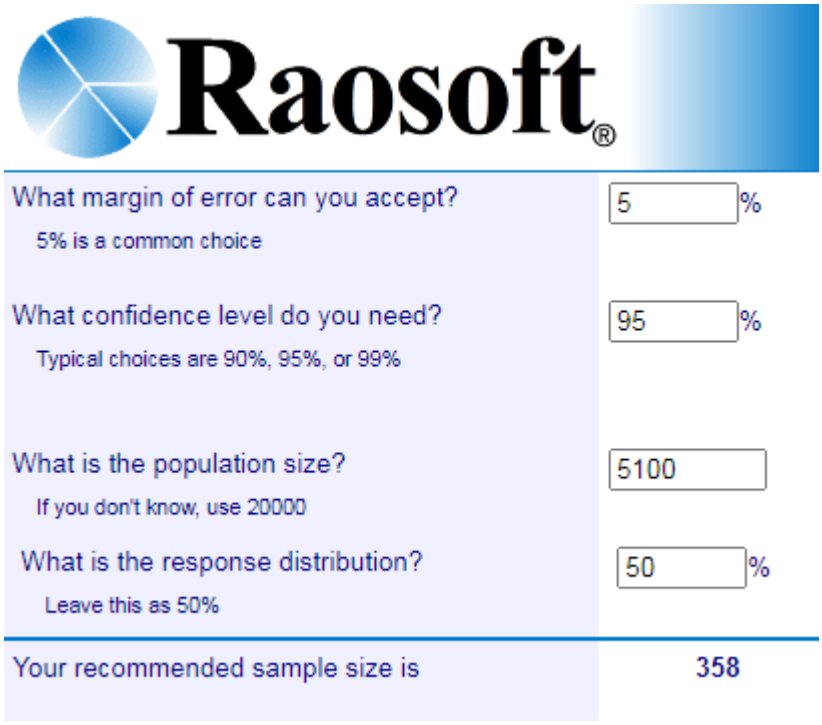


Figure 5.1 Sample size calculation

The recommended sample size for a 5% margin of error with a 95% confidence limit is 358. A total of 375 questionnaires were distributed in Setswetla. Of these, 293 could be used in the study, which equates to a margin of error of 6% and a confidence limit of 92%.

5.5 Data collection

A questionnaire (comprising six sections) was used to gather data in Setswetla during December 2020. The questionnaires consisted of qualitative questions where respondents selected answers based on a Likert scale, as well as open-ended quantitative questions. While focus groups or interviews would have added value to the data collection process, the limitations on movement and gatherings imposed by the Covid-19 regulations during the second wave of infections in South Africa made this impractical at the time the research was carried out. A disadvantage of using questionnaires in research is the rate of return of the documents (Leedy and Ormrod 2015). To achieve an adequate return rate of questionnaires, the community team mentioned above distributed and collected them, and the onus was not on respondents to return questionnaires.

The six sections of the questionnaire (Appendix A) used to collect data for this study are as follows:

- Section A – Demographics
- Section B – Socio-economic information
- Section C – Experience of disasters
- Section D – Trauma symptom assessment
- Section E – COPE questionnaire
- Section F – COVID-19 questionnaire

Sections A and B provide the demographic and socio-economic information of the respondents, whereas section C provides information on the types of disasters to which the respondents have been exposed.

It is not the purpose of this study to diagnose any mental health condition, and therefore a questionnaire that measures the prevalence of symptoms were used. The trauma symptom identification section (D) of the questionnaire was developed using the revised Harvard Trauma Questionnaire (Berthold, Mollica, Silove et al. 2018), which was developed as a cross-cultural survey instrument to measure trauma exposure, and which has been updated to take into account the latest changes made to the DSM-5 diagnostic criteria for trauma. The questionnaire consists of 25 questions aligned to the DSM-5 criteria, with a range of four responses for symptoms present in the past week as follows:

1. – not at all
2. – a little
3. – quite a bit
4. – extremely

The responses were given a score corresponding to the number listed above. The scores were added up and divided by the number of responses. A score of 2.5 or above indicates the presence of the symptoms of trauma (Berthold et al. 2018). The trauma score was determined for each respondent, and a frequency graph showing the prevalence of trauma was compiled.

Section E of the questionnaire comprises the 28 questions specified in the brief COPE questionnaire as compiled by Carver (1997), which consists of a range of four responses to a suite of 28 questions. The questions incorporate active coping, planning, positive reframing,

acceptance, humour, religion, the use of emotional support, the use of instrumental support, self-distraction, denial, venting, substance abuse, behavioural disengagement and self-blame. The responses are:

1. – I usually don't do this at all
2. – I usually do this a little bit
3. – I usually do this a medium amount
4. – I usually do this a lot

The last section of the questionnaire, section F, is comprised of eight Covid-19 questions, which was used to gauge the community's awareness and experience of Covid-19. It must be noted that the survey was done in December 2020, and therefore it is possible that community responses will have changed over time due to changes in mutations in the virus, the response and the availability of the vaccine.

5.6 Data analysis

A total of 375 questionnaires were distributed, but of these 293 were included in the final analysis. The reasons for the exclusion of other questionnaires from the analysis were two-fold: some of the questionnaires were incomplete and as such did not provide the required information, and some of the questionnaires were completed incorrectly. The data from the questionnaire were captured in an Excel spreadsheet (Microsoft Office 2016, Excel version 2002) in a discrete variable format. The data were then checked for reliability. The questions were assigned unique numbers, which were coded as nominal data depending on the responses. Excel was also used for the compilation of the graphs in Chapter 6.

The spreadsheet was submitted to the Statistical Consultation Unit at the University of the Free State for analysis. The statistical analysis was done using the statistical computing package R (R Core Team 2021). The frequency of trauma scores was calculated to assess prevalence. Due to the skewness of the results, the trauma scores to the log (base e) were used for further analysis. The prevalence of trauma by category was analysed using the ANOVA test (Zar 1984), where $p>0.05$ indicates a correlation with trauma within the category in question.

The core of the analysis is the prevalence of trauma symptoms, and the total trauma score from Section D is used in the analysis. Questionnaires with a value of 2.5 and above have been classified as exhibiting symptoms of trauma (Berthold et al. 2018). The total prevalence of the

symptoms of trauma in the sample was analysed, as well as trauma within different socio-economic sectors of the population.

Coping was assessed using the brief COPE questionnaire in Section E. The questions are mixed within the questionnaire to collect responses on active coping, planning, positive reframing, acceptance, humour, religion, the use of emotional support, the use of instrumental support, self-distraction, denial, venting, substance abuse, behavioural disengagement and self-blame. The brief COPE questionnaire is used to assist in the identification of the types of coping mechanisms that are being used presently, and which coping strategies or interventions may be required in months to come with regard to the mental health of the community. The average coping scores were compared across demographics to ascertain whether coping mechanisms were being used by those exhibiting trauma, and which mechanisms (if any) were more prevalent. The responses to the COPE questionnaire were recorded by frequency and a boxplot comparing the use of coping in respondents exhibiting trauma to those with a low trauma score was compiled.

The COVID-19 questionnaire provides specific insight into the impact of the pandemic, as well as the impact of preventive measures taken on the respondent community. It must be noted that the surveys were done at the end of 2020, and may not be reflective of present awareness or sentiment regarding the pandemic.

The results have been summarised according to categorical and numerical variables. Categorical variables have been summarised as frequencies and percentages, and numerical variables have been summarised as means and percentiles. Chi-square tests were conducted to determine the statistical differences between those informal settlement residents who scored high and those who scored low on the questionnaire.

CHAPTER 6
RESULTS AND DISCUSSION

6.1 Introduction

This chapter includes the presentation of the data collected during the study and a discussion on the results of the study. A total of 375 questionnaires were distributed in Setswetla during the course of the study, of which 293 were used in the analysis. Where no response was returned in the survey, the question is recorded as “not specified” in the tables below.

6.2 Demographics

The demographics of the respondents are shown in Table 6.1.

Just over half (55%) of the respondents to the survey were female, and 34% of the respondents were male and 11% of the respondents chose not to specify their gender. It must be noted that the study did not specifically engage with any groups in the community regarding aspects such as belief systems, gender identity, employment and empowerment of women, due to the scope of the dissertation. Future studies could specifically include these groups (and others) to obtain an understanding of their response to and coping mechanisms during disasters.

The majority of the respondents fell into the age group of 40 to 49 years (38%), whereas, 31% of respondents were 25 to 39 years old, followed by 17% that fall between the 18 to 24 years age range and 13% that fall between 50 and 59 years. One percent of respondents were over 60 years, and one percent did not specify their age.

With respect to employment status, 30% of the respondents in Setswetla indicated that they are unemployed, followed by 26% who reported to be self-employed, while 23% are in formal jobs, 13% were students and 5% considered themselves to be in informal employment, with 4% of respondents being retired. In addition, the majority of the respondents, 50% reported being single, followed by 41% of the respondents that indicated that they are married, 8% included “other”, and only 1% did not specify their marital status.

Table 6.1 Demographics of survey respondents in Setswetla informal settlement

Demographics categories	Frequency	Percentage
Gender		
Female	160	55
Male	99	34
Not specified	34	11
Age group		
18–24	51	17
25–39		31
40–49	106	37
50–59	39	13
60+	4	1
Not specified	3	1
Employment status		
Formal	67	23
Self-employed	75	26
Informal	14	5
Student	37	13
Unemployed	88	30
Retired	11	4
Not specified	1	0
Marital status		
Married	120	41
Single	148	50
Other	22	8
Not specified	3	1
Nationality		
South African citizen	184	63
South African permanent resident	49	17
South African work permit	10	3
Other	47	16
Not specified	3	1
Level of education		
None	62	21
Primary	26	9
Secondary	146	50
Tertiary	53	18
Not specified	6	2

South African citizens comprised 63% of the respondents in Setswetla, whereby 17% are permanent residents in the country, while 3% have South African work permits, 16% selected “other”, and 1% did not specify their resident status in the country. There are likely high numbers of foreign nationals residing in the area, some of whom are undocumented, typical of informal settlements in South Africa and elsewhere.

Furthermore, the majority of the respondents, 50% indicated that they had completed secondary education (high school), followed by 18% that indicated that they have a tertiary education, 21% with no education, 9% with primary school, and 2% that did not specify their level of education. It is possible that there may be people who are well-educated living in the area who are not employed, or not doing the jobs for which they are qualified.

6.3 Socio-economic information

The socio-economic information of the questionnaire respondents is shown in Table 6.2.

Most of the houses in Setswetla where the respondents reside are constructed of brick (usually cement breeze block, *personal observation*) (57%), and 37% are constructed from wood. Only 1% of the respondents chose “other” as the building material (which could include zinc sheets and plastic), while 5% did not specify building material for their dwellings. The majority of the houses in Setswetla are constructed within the flood plain of the Jukskei River and are flooded or washed away during high water events.

The majority of the respondents in Setswetla, 66% indicated that they own their houses, and 25% reside in rental properties. Only 2% responded “other”, which could indicate that they stay with family or friends, and 7% did not specify the ownership status of their home.

Table 6.2 Socio-economic information of survey respondents in Setswetla informal settlement

Socio-economic information categories	Frequency	Percentage
House type		
Brick	166	57
Wood	108	37
Other	4	1
Not specified	15	5
House ownership		
Own	192	66
Rent	74	25
Other	7	2
Not specified	20	7
Household income per month		
None	27	9
R0–500	37	13
R500–1000	48	16
R1000–3000	85	29
R3000–R5000	38	13
R5000+	28	10
Not specified	30	10
Main income sources		
Salary	70	24
Wages	17	6
Relative	11	4
Pension	7	2
Social grant	90	31
Informal	54	18
None	15	5
Other	2	1
Not specified	27	9
Duration of residence in area		
0–1 year	62	21
2–5 years	26	9
6–10 years	146	50
11–20 years	53	18
Not specified	6	2

The highest percentage of respondents, 29% indicated that their household income is between R1 000 and R3 000 per month, whereas 16% indicated R500–R1 000 per month, followed by 13% of respondents who equally indicated R0–R500 and R3 000–R5 000 as their household monthly income. In addition, 10% of households have an income of more than R5000, and 9% reported not having an income. Ten percent did not specify monthly household income. The majority of the respondents, 31% indicated that their income is reliant on social grants, with 24% earning a salary, 18% receiving informal earnings and 6% wages. Other sources of income reported include being supported by a relative (4%), pension (2%), other sources (0%), 5% of respondents reported that they have no income and 9% did not respond to the question.

Half of the survey respondents have lived in the Setswetla informal settlement for between six and ten years, with 21% having resided in the area for less than a year, and 18% for 11 to 20 years. A total of 26% have lived in the area for 2 to 5 years, and 2% did not specify how long they have lived in Setswetla. The 21% of respondents living in the area for less than a year suggests that migration in and out of the area occurs frequently, which could be due to the arrival of people from other parts of South Africa or Africa who come to Johannesburg seeking economic opportunities.

6.4 Exposure to disasters

The respondents were asked a range of questions regarding their experience of disasters in Setswetla. Respondents were asked whether they had experienced a disaster, type of disaster experienced, and about the type of assistance (if any) they had received after the disaster, with particular regard to mental health and the majority, 86% of the respondents indicated that they had experienced or witnessed a disaster (Figure 6.1). The United Nations Office for Disaster Risk Reduction (UNDRR) report on the global trends and perspectives for disasters in 2020 (excluding COVID-19) (Centre for Research on the Epidemiology of Disasters [CRED] and UNDRR 2021) states that the majority of disasters worldwide are climate-related, 41% of these disasters occurred in Asia, with 64% of the population affected by these events. That 86% of survey respondents in Setswetla indicated that they have experienced or witnessed a disaster is inordinately high and it can be assumed that the residents of the area have been impacted in a number of ways, including effects on their mental health.

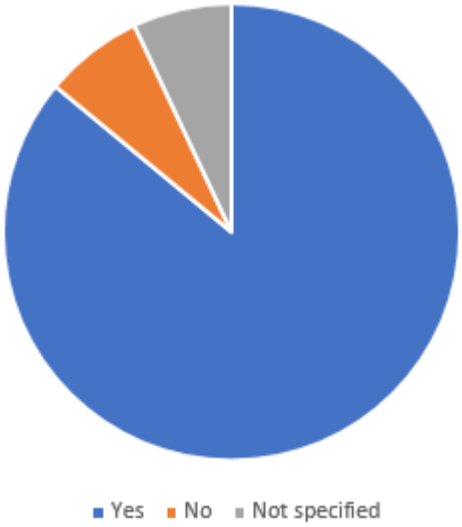


Figure 6.1 Proportion of survey respondents who have experienced or witnessed a disaster

The type of disaster that has been experienced by most of the survey respondents in Setswetla was fire (91%), followed by floods (87%) (Figure 6.2). According to the 2020 World Disasters Report (IFRC 2020), 83% of natural disasters within the last decade involved extreme weather events (such as flooding, drought and heat waves) and the number of weather or climate-related disasters has increased by 35% in the last 20 years, suggesting that such occurrences could become more common in future.

The numbers indicate that most of the respondents have experienced more than one type of disaster, most likely both floods and fire. A total of 12% of respondents indicated that they had experienced an epidemic. The survey was undertaken at the end of 2020, and it is likely that if this survey was taken again this number would be significantly higher due to the prolonged Covid-19 pandemic. Two percent of the survey respondents indicated that they have experienced a tornado, while one percent noted unspecified other disasters (Figure 6.2).

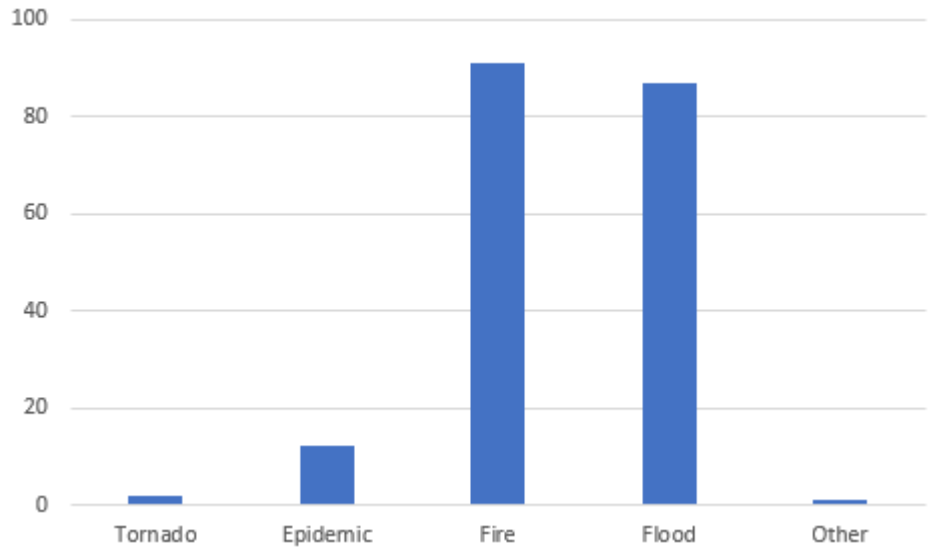


Figure 6.2 Percentage of disaster types experienced by survey respondents

The survey respondents were asked how long ago the disaster event that they experienced or witnessed occurred and the majority, 41% of the respondents, stated that the event occurred more than five years ago (60 months) (Figure 6.3). A total of 22% of respondents were affected by a disaster that occurred between two and five years ago.

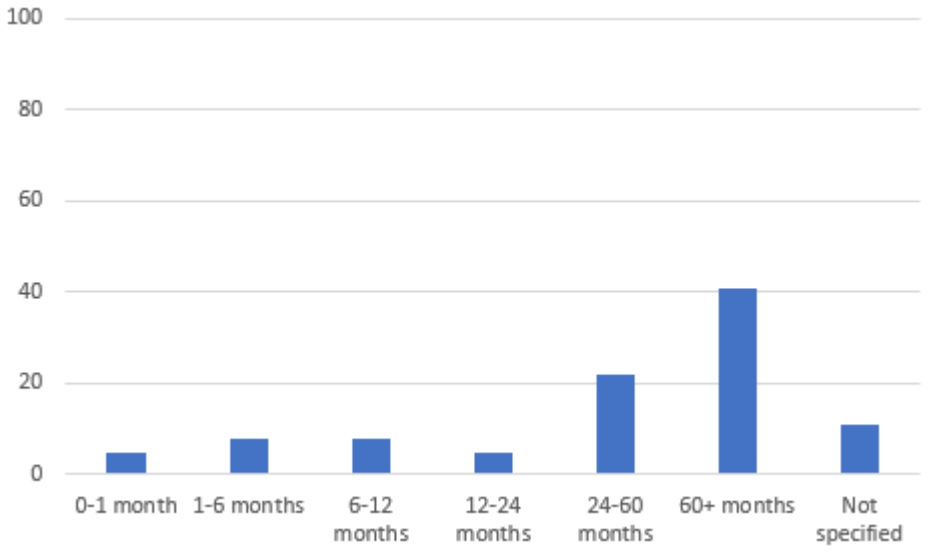


Figure 6.3 Percentage of how long ago the event was experienced by respondents

The survey respondents in Setswetla were negatively affected by experiencing or witnessing a disaster, and the main impacts were property loss (78%) and property damage (72%), with 9%

experiencing an injury or health hazard and 10% witnessing the impact on the health of another person (Figure 6.4).

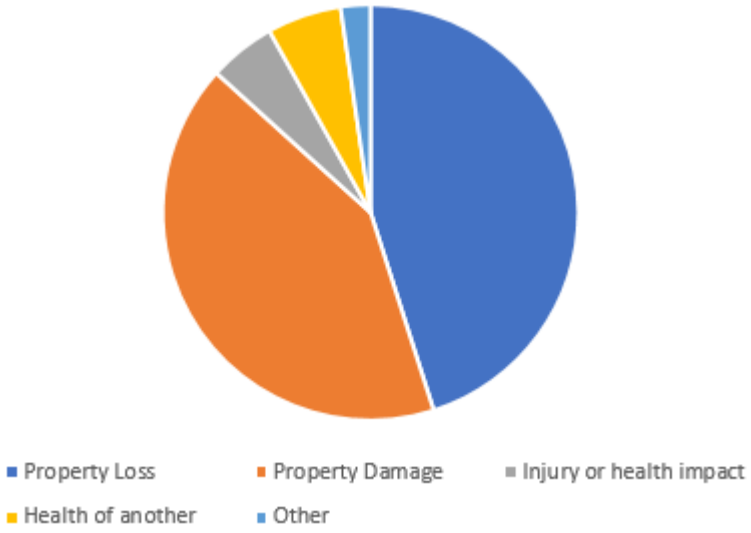


Figure 6.4 Impacts of the disasters on survey respondents

Respondents were asked whether they received counselling after the disaster event and 19% indicated that they had received counselling after the event or events, whereas 56% of the respondents did not receive assistance, and 25% did not respond to the question.

Of the respondents who answered “yes” to having received counselling or assistance after experiencing or witnessing the disaster, the majority, 229 were assisted by non-governmental organisations, 140 were assisted by friends and 90 by family (Figure 6.5). In addition, 32 respondents were assisted by spiritual organisations, while 15 received medical assistance and only four respondents received professional counselling after experiencing or witnessing a disaster (Figure 6.5).

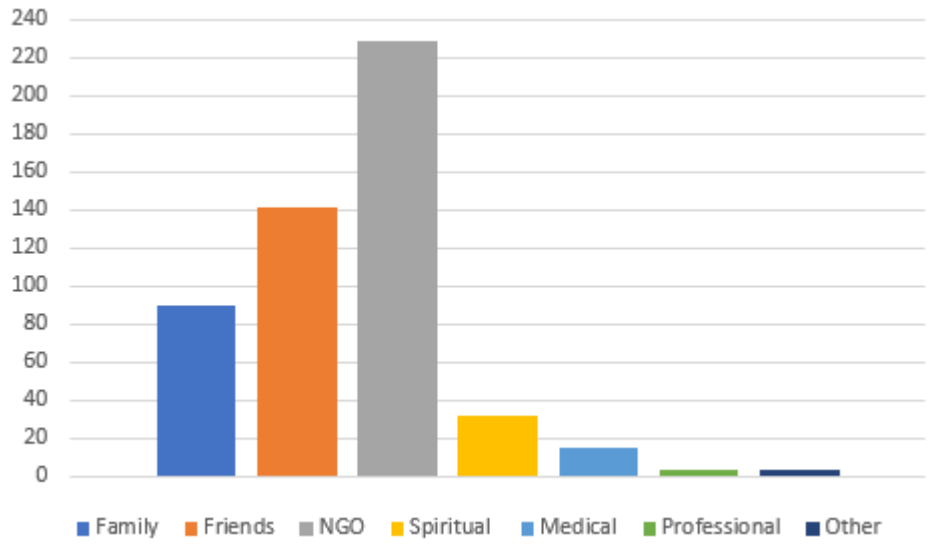


Figure 6.5 Sources of assistance or counselling after a traumatic event (number of respondents)

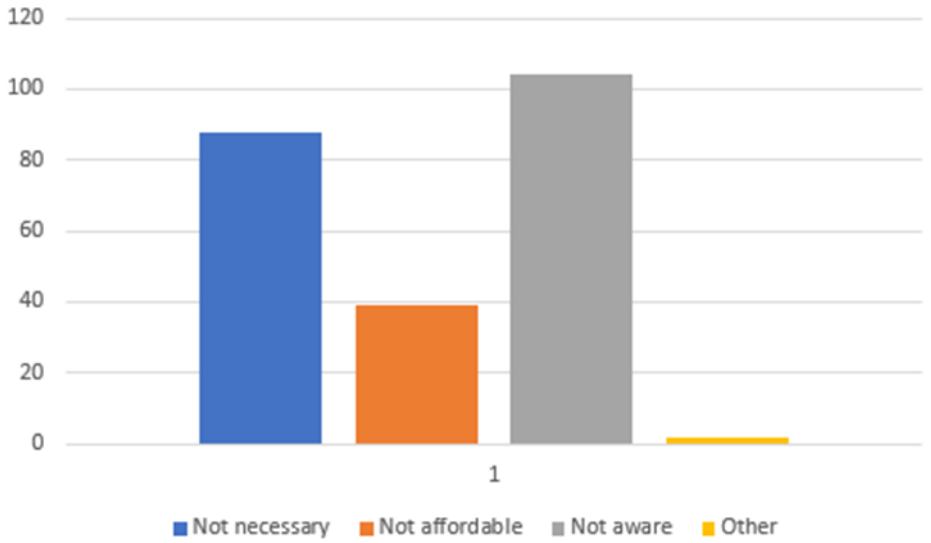


Figure 6.6 Reasons for not receiving counselling (respondent numbers)

Respondents who did not receive counselling or assistance after experiencing or witnessing a disaster did not do so because they thought that it was not necessary (n=88), 104 were not aware that counselling could assist them and 39 stated that it was unaffordable with two people not giving reasons why they did not receive counselling or assistance (Figure 6.6). A total of 50% of respondents, however, indicated that they were aware that experiencing or witnessing a traumatic event such as a disaster could have an impact on their mental health and 39%

stated that they were not aware of the impact of disasters on mental health, with 11% of the respondents choosing not to respond to this question (Figure 6.6).

Setswetla informal settlement is located within the flood zone of the Jukskei River. Respondents were asked whether they are aware that they live in an area where they can be affected by disasters, particularly flooding. The majority, 50% of Setswetla residents who responded to the questionnaire indicated that they are aware that they live in a disaster-prone area whereas 39% stated that they are not aware that they live in a flood-prone area, and 11% did not provide a response to the question. As a follow-up question, the respondents were asked why they choose to live in the area if they are aware that it is affected by disasters and of the 50% that indicated that they were aware they live in flood-prone area, 17% felt as though they had no choice but to live in Setswetla (Table 6.3). The majority of the respondents from the 50%, 38% said that the area is affordable to live in, while 11% responded that they are waiting for the government to provide Reconstruction and Development Programme houses for them (Table 6.3). Seven percent said that they like living in the area, mainly for reasons of convenience and access to work, a further seven percent did not respond to the question.

Table 6.3 Respondent reasons for living in Setswetla

Reasons for living in Setswetla	Percentage of respondents
No alternative	17
Financial (affordable)	38
Waiting for the government to provide housing	11
Convenient/like living in the area	7
Not specified	7

6.5 The Harvard Trauma Questionnaire

The revised Harvard Trauma Questionnaire (Berthold et al. 2018), a cross-cultural survey instrument that was developed to measure trauma exposure was used to assess the prevalence of trauma symptoms in survey respondents from Setswetla. Each survey response was scored (where a score of 2.5 or above indicates trauma symptoms), and a frequency graph was generated (Figure 6.7).

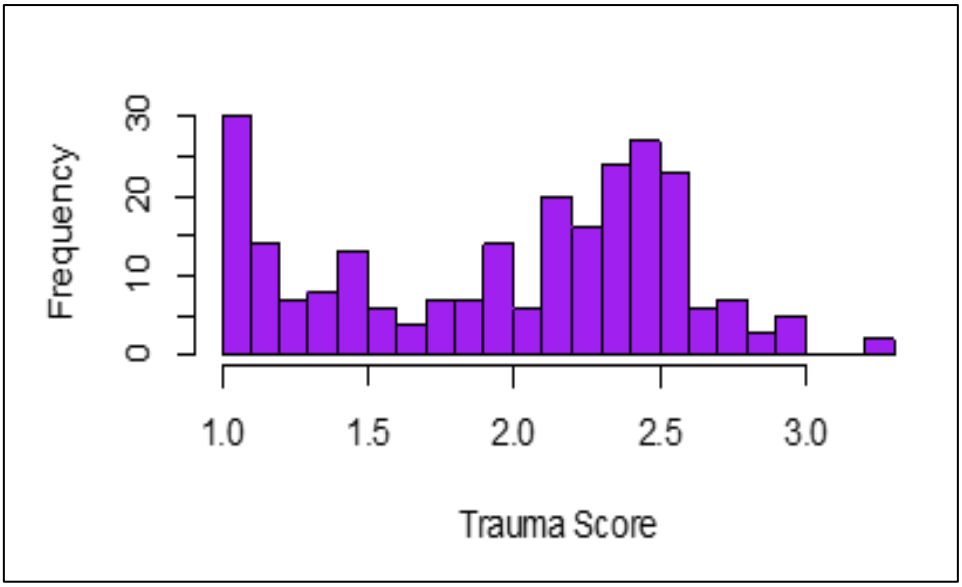


Figure 6.7 Frequency of trauma symptoms in Setswetla survey respondents

For the purpose of statistical analysis of the data (due to the skewness of the trauma scores), the trauma scores were converted to log (base e) for further analysis. The frequency graph showing the Ln trauma scores is shown in Figure 6.8.

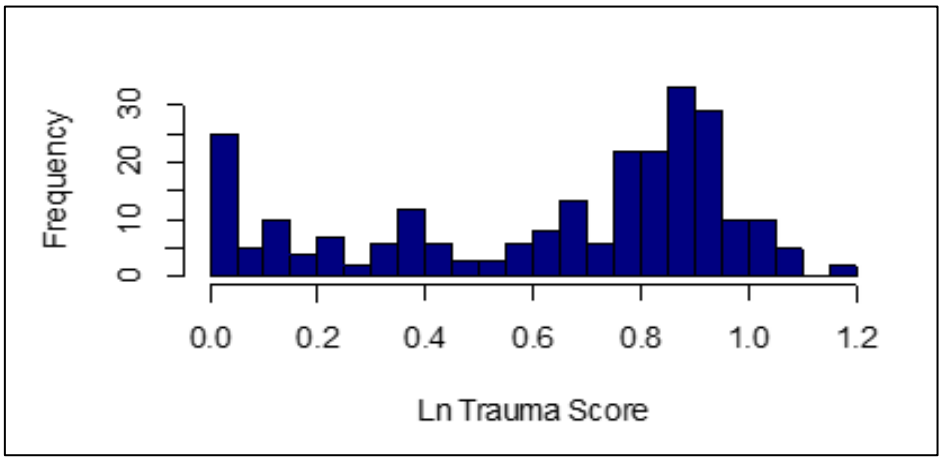


Figure 6.8 Frequency graph of log (e) trauma scores

The frequency plots in Figure 6.7 and 6.8 show two clear peaks with regard to trauma scores, indicating that there is a clear separation between survey respondents in Setswetla who show symptoms of trauma, and those who do not. Trauma symptoms are present in the Setswetla survey respondents.

The second part of the analysis was to assess the aspects of the demographics, socio-economic data and disaster exposure variables for the survey respondents to assess whether the prevalence of trauma is affected by these variables. An ANOVA was applied on both the raw and log (base e) trauma scores, and a Chi-square analysis was applied on the raw data. A -value of less than 0.05 indicates that the prevalence of trauma is dependent on the variable. The results of the comparison are shown in Table 6.4 (significant *P*-values are shown in bold italics).

Table 6.4 Impact of demographic, socio-economic and disaster exposure variables on trauma scores

Prevalence of trauma	ANOVA p value	Chi-square p value	ln ANOVA p value
Prevalence of trauma is affected by gender	0.405	0.786	0.395
Prevalence of trauma is affected by age	0.589	0.274	0.558
Prevalence of trauma is affected by employment status	0.097	***0.036***	***0.05***
Prevalence of trauma is affected by level of education	0.326	0.268	0.223
Prevalence of trauma is affected by household income	0.379	***0.026***	0.318
Prevalence of trauma is affected by length of time living in the area	***0.036***	***0.004***	0.076
Prevalence of trauma is affected by whether the person has experienced or witnessed a disaster	***0.003***	***0.001***	***0.001***
Prevalence of trauma is affected by how long ago the disaster occurred	0.745	0.066	0.719
Prevalence of trauma is affected by post-event counselling	0.788	0.860	0.853
Prevalence of trauma is affected by awareness that experiencing a disaster can affect mental health	0.103	0.101	0.065

Ten demographic, socio-economic and disaster exposure variables were used to assess the prevalence of trauma. These were gender, age, employment status, level of education, household income, length of time living in the area, whether or not the person has witnessed a disaster, how long ago the disaster occurred, whether or not the person received post-event counselling, and awareness about whether experiencing a disaster can affect mental health.

Prevalence of trauma in the Setswetla questionnaire respondents does not appear to be affected by gender, age, education level, how long ago the disaster occurred, post-event counselling, or awareness about whether experiencing a disaster can affect mental health.

A number of factors were identified which appear to affect the prevalence of trauma in survey respondents. These include:

- Whether the person has experienced or witnessed a disaster
- Length of time living in the area
- Employment status; and
- Household income (Chi-square significance only; Table 6.4).

While it may be intuitive that experiencing or witnessing a disaster would lead to an indication of trauma symptoms in respondents, other trauma-inducing occurrences such as violence (crime, political or domestic) or accidents could also factor into the trauma scores (that is, people could show trauma symptoms without experiencing a disaster). In Setswetla, it appears as though there is a strong link between experiencing or witnessing a disaster, and the prevalence of trauma (Table 6.4). A future comparison could be made between the prevalence of trauma symptoms in residents of Setswetla and people residing in other parts of Alexandra who experience less exposure to disasters to assess the impact of disaster-related trauma to the experience of other traumatic events.

Prevalence of trauma symptoms also appears to relate to the length of time that people have lived in the area (Table 6.4). A total of 41% of survey respondents indicated that they had experienced or witnessed a disaster more than five years ago, thus would have needed to be living in the area for at least that long to have experienced the disaster. It is likely that the disaster being referred to during this time period is the flooding of the Jukskei River in November 2016, which resulted in severe flooding and loss of life and property in the area (Hill 2016). It is possible that Setswetla residents are still experiencing unresolved symptoms of trauma after this event; however, this would require further confirmation.

Employment status and household income appear to relate to the prevalence of trauma symptoms. A total of 31% of survey respondents indicated that they rely on social grants, and 38% of respondents indicated that they live in Setswetla for financial reasons. It is possible that financial stress could exacerbate symptoms of trauma from living in a disaster-affected area. A total of 63% of survey respondents indicated that they are South African, meaning that a relatively high proportion of people living in Setswetla are foreign nationals. It is also possible that highly qualified people from other countries are resident in the informal settlement who

have not been able to find employment in their field of expertise, which also has the potential to induce additional symptoms of stress.

Symptoms of stress and trauma are evident in the questionnaire respondents residing in Setswetla, which are likely to be caused by the high exposure to disasters. Other factors, such as financial stress, could be adding to the problem of trauma.

6.6 The brief COPE questionnaire

The brief COPE questionnaire as compiled by Carver (1997), which consists of a range of four responses to a suite of 28 questions was adopted by this study. The questions incorporate the identified coping mechanisms of active coping, planning, positive reframing, acceptance, humour, religion, the use of emotional support, the use of instrumental support, self-distraction, denial, venting, substance abuse, behavioural disengagement and self-blame.

The results of the brief COPE questionnaire, depicted in Figure 6.9 show whether coping strategies are used by Setswetla questionnaire respondents who do not exhibit prevalence of trauma, versus those who do. The respondents whose Harvard trauma questionnaire scores indicated that they are not experiencing symptoms of trauma score low on the Coping scale (most of the scores between two and five, with a median score of three). Those with a Harvard trauma score indicating the presence of trauma all appear to use coping mechanisms, with most scores on the coping scale between four and seven, with a median score of five.

Most of the 14 coping mechanisms, both positive and negative, given as options in the questionnaire are used by respondents with Harvard questionnaire scores indicating the presence of trauma, and the results are relatively homogenous. The coping mechanism used marginally most often is “acceptance”, followed by “planning”, both of which are positive coping mechanisms. The coping mechanisms used least include “religion”, “emotional support”, and “denial”.

There is a clear distinction in coping scores between respondents exhibiting trauma symptoms and those who do not. As very little mental health assistance or counselling has been made available in this community, it is possible that the ability to naturally use coping mechanisms that are positive indicates a natural level of resilience in the community which should be further built upon and encouraged.

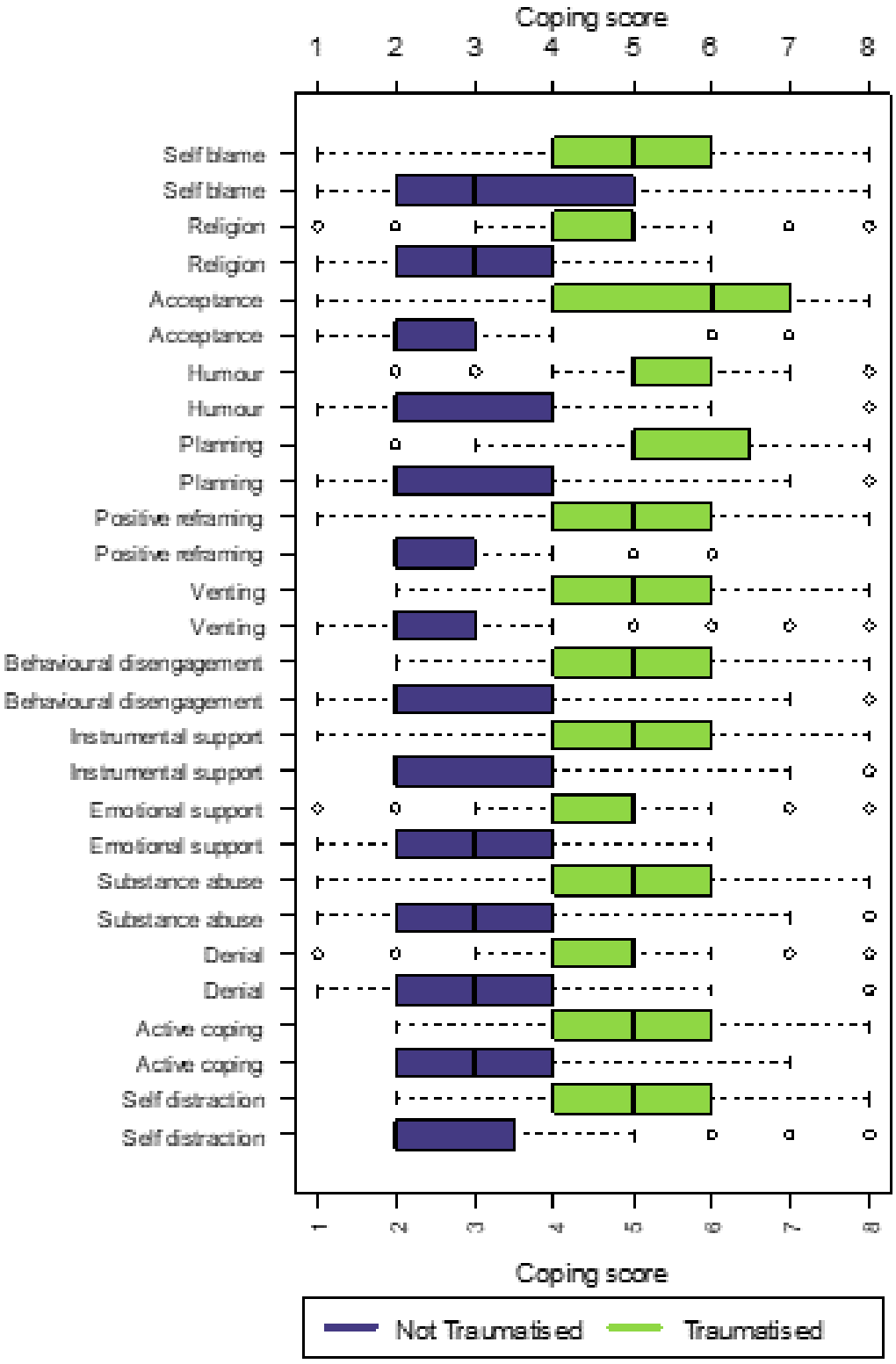


Figure 6.9 Coping scores of traumatised and non-traumatised survey respondents

6.7 Experience of Covid-19 in Setswetla

The Covid-19 questionnaire was included in the study to provide a snapshot of the experience and opinions of respondents in Setswetla at the time the surveys were undertaken (December 2020). The pandemic had been in progress for about nine months, with the country having experienced the Level 5 lockdown from 26 March 2020 to 30 April 2020 (South Africa 2021).

6.7.1 Communication about the Covid-19 pandemic

The Setswetla respondents that were asked whether they had received any information about the Covid-19 pandemic, and if they had, where they had gained the information and 77% of the respondents had heard about the pandemic, four percent responded that they had not heard about Covid-19, and 19% did not respond to the question. A total of 53 respondents indicated the source from which they had gained the information.

The majority of respondents (n=31) stated that they had received information from the media, with 13 respondents reported to have heard about Covid-19 from a clinic. The remaining sources of information were disaster management community outreach (n=2), workplace (n=2), school (n=3), family (n=1) and through a non-governmental organisation (n=1; Figure 6.10). From the responses received, it appears as though the media was the most effective means of communication regarding the pandemic in this area.

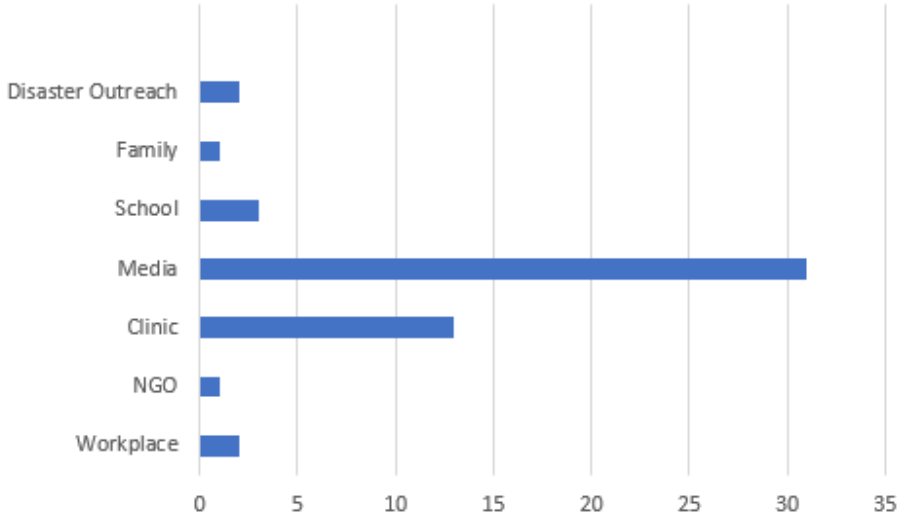


Figure 6.10 Sources of information about Covid-19

6.7.2 Symptoms and diagnosis of Covid-19

When asked about whether they were aware of the symptoms of Covid-19, 79% of respondents stated that they were aware of the symptoms; two percent noted that they did not know about the symptoms of Covid-19, and 19% did not respond to the question. Seven percent of respondents indicated that someone in their household had symptoms of Covid-19, or had been diagnosed with the virus. A total of 74% of households surveyed did not have symptoms or a diagnosis of Covid-19, and 19% did not respond to the question.

6.7.3 Economic impact of Covid-19

Respondents were asked whether they had experienced any economic loss from the lockdown, for example the loss of a job. Figure 6.11 shows the economic losses experienced from the pandemic, where 55% of respondents experienced loss, 26% did not experience an economic loss, and 19% did not respond to the question.

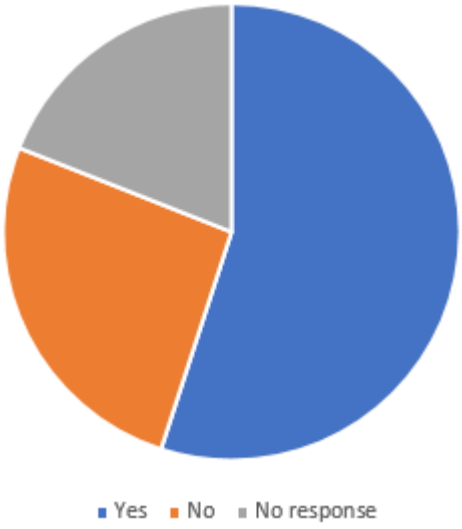


Figure 6.11 Proportion of respondents who experienced an economic loss

6.7.4 Ability to comply with Covid-19 regulations and preventive measures

Respondents in Setswetla were asked whether they were able to comply with the regulations that were specified during the lockdown, as well as use preventive measures. The following

questions were asked:

- Has it been possible to stay in your home during lockdown?
- Have you been able to practice social distancing?
- Do you have adequate access to soap and water for washing your hands?

The responses to the questions are shown in Table 6.5.

Table 6.5 Ability to comply with Covid-19 regulations

Question	Yes (%)	No (%)	Unspecified (%)
Has it been possible to stay in your home during lockdown?	29	52	19
Have you been able to practice social distancing?	30	51	19
Do you have adequate access to soap and water for washing your hands?	72	9	19

A total of 52% of the respondents reported that it has not been possible to stay in their homes during lockdown, whereas 29% indicated that they were able to stay indoors and 19% did not respond to the question. Houses in the Setswetla informal settlement are small, and sometimes house entire families, leading to overcrowding and difficult conditions in which to comply with lockdown regulations. The numbers are similar for social distancing. The majority of respondents (72%), however, indicated that they did have access to soap and water for handwashing.

6.7.5 Covid-19 concerns

The final section of the Covid-19 questionnaire was an open question where respondents were asked what their main concern was during the Covid-19 pandemic. The responses received were grouped into the following categories:

- Medical – concerns about contracting Covid-19.
- Economic – concerns about loss of jobs and income.
- Compliance – concerns that people in Setswetla were not abiding by Covid-19 restrictions (for example social gatherings).
- Personal prevention – concerns about ability to protect oneself from Covid-19.
- Overcrowding in the informal settlement.
- Evidence of Covid-19.

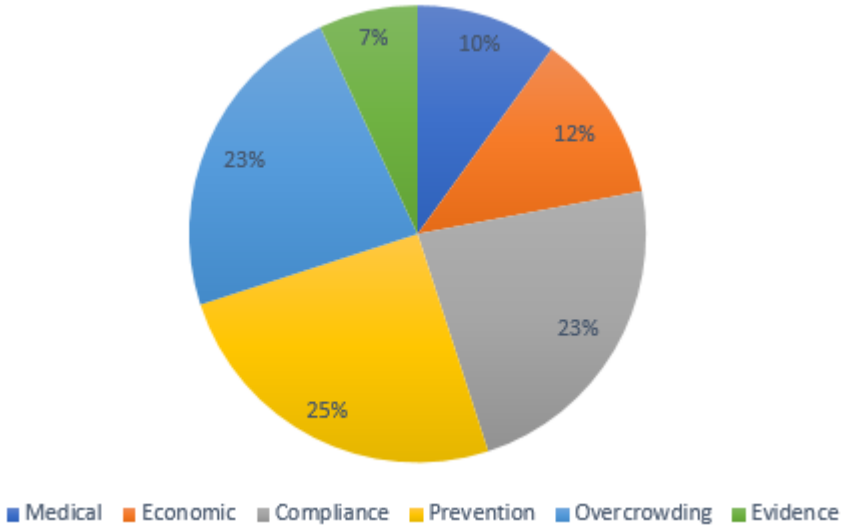


Figure 6.12 Setswetla survey respondents Covid-19 concerns

Of the people surveyed who responded to the open-ended question about their biggest concern with regard to Covid-19, 25% were concerned about their personal safety with respect to preventing Covid-19 exposure whereas 23% were concerned about overcrowding in Setswetla as the houses are very close together, and many families share ablution facilities and taps. In addition, a further 23% were concerned about the lack of compliance to regulations such as social gatherings, and 12% were concerned about the economic impacts of the pandemic by loss of jobs and income. Furthermore, 10% of the respondents were concerned that they would catch Covid-19, while the remaining 7% said that they had seen no evidence of the virus and did not believe that it would affect them (Figure 6.12).

6.8 Chapter summary

The Covid-19 pandemic is a disaster where people residing in informal settlements such as Setswetla have to deal with the double burden of the pandemic itself, as well as the impacts of measures taken to prevent the spread of the virus. These preventive measures are often not practical to implement under crowded living conditions, and have the potential to negatively impact on livelihoods, which may take a long time to recover. This also has the potential to impact on the mental health of people residing in Setswetla.

CHAPTER 7
CONCLUSION AND RECOMMENDATIONS

7.1 Introduction

This section of the study will refer back to the research questions and sub-questions, and outline the conclusions from the research, as well as recommendations for actions and future studies. The section considers the findings of the study in the light of the theoretical framework discussed in Chapter 2, and the international legislation and standards discussed in Chapter 3.

7.2 Summary of findings

The Setswetla informal settlement is located within the flood line of the Jukskei River in Alexandra Township of the City of Johannesburg, is subject to disasters such as flooding, and shack fires. A high proportion of the community (86%) has experienced or witnessed a disaster (possibly multiple times). From the responses obtained in the survey from the residents of Setswetla, there is evidence of trauma symptoms in the community, which have possibly been caused by exposure to disasters (although exposure to other traumatic events also occurs).

The prevalence of trauma is linked to witnessing or experiencing a disaster but also relates to employment status and income. It is possible that trauma symptoms could be caused by the stress of unemployment (made worse by economic losses during the Covid-19 pandemic), or exacerbated in those already experiencing trauma symptoms through exposure to disaster/s.

There is a clear distinction in the responses to the brief COPE questionnaire between those respondents exhibiting symptoms of trauma and those who do not. Coping mechanisms are being used by those exhibiting symptoms of trauma. While the main coping mechanisms used appear to be positive, the use of negative coping mechanisms is also present.

The majority of the residents of Setswetla are aware that they live in an area that is affected by floods, but many indicate that they have no other choice but to stay in the area. The main reasons that people reside in the area are economic, including free services, low living costs and close proximity to work.

The Covid-19 questionnaire indicates that most of the respondents in Setswetla had heard of the Covid-19 pandemic, mainly through the media. Complying with Covid-19 regulations was difficult in Setswetla due to overcrowding and sharing of facilities such as ablutions. Most of the respondents indicated that they had been negatively affected economically by the pandemic, with some losing jobs and livelihoods.

7.3 Findings in relation to the research questions

The main research question of the study is whether symptoms of trauma are present in the disaster-affected Setswetla community, and what coping mechanisms are used. The study shows that symptoms of trauma are present in the Setswetla informal settlement, and that such prevalence is linked to the direct experience of, or witnessing a disaster. The study also shows that a wide range of coping mechanisms are used in the community, with “acceptance” being the main mechanism used.

7.4 Findings in relation to the theoretical framework

The main theoretical framework discussed for this research is the Sustainable Livelihoods Framework (DFID 1999), which has the focus of poverty alleviation. The main capitals under consideration in this context are human capital and social capital, which focus on the individual and the community context respectively. Poverty is listed as one of the top ten disaster hazards in the City of Johannesburg (as discussed in Chapter 4), and has been discussed in the context of disaster management in this study. The study shows that the prevalence of trauma symptoms is related to employment status and household income, as well as experiencing a disaster.

Inclusion of mental health considerations within the social and human capitals could have an impact on resilience in disaster preparedness and planning, as well as in disaster response and relief. Reduction of trauma prevalence within Setswetla has the potential to contribute towards the reduction of poverty as a hazard as the mental health of people could improve, increasing individual and community functioning.

7.5 Findings in relation to international legislation and standards

The main focus of the Sustainable Development Goals is also poverty alleviation (United Nations 2015), with SDG 3 focussing on promotion of healthy living and well-being, which would also include mental health.

The Sendai Framework (UNISDR 2015) has a focus on resilience, and the recommendations of the study to include mental health considerations in disaster risk reduction and response would contribute towards the development of resilience in affected communities.

The Sphere Minimum Standards (Sphere Association 2018) include four main sections, and the results of the study apply to all of them. Foremost is health, where mental health can be included in disaster management alongside physical health. The other aspects of the Sphere Minimum Standards are included in Psychological First Aid whereby human needs such as clean water, food, clothing, shelter, hygiene and safety are included.

7.6 Recommendations for trauma reduction in disasters in Setswetla

There is presently a systemic failure in the effective implementation of mental health care systems in South Africa (as already presented in Chapter 4), and a lack of integration between the disaster management function and mental health care, which is exacerbated by the burden imposed on the health care and mental health care systems from Covid-19.

While this dissertation does not seek to make recommendations regarding mental health care, poverty alleviation or job creation at a national or provincial level, some interventions could be considered at a community level to reduce the levels of stress and trauma, and build mental resilience, particularly in places that are prone to disaster.

The main recommendations are the introduction of the PFA protocol, and increased education and training on wellness and stress management.

7.6.1 Psychological first aid

The PFA process as detailed in Chapter 4 could be a useful intervention, both in the context of a natural disaster as well as the Covid-19 pandemic. Disaster management first responders, community disaster management volunteers, community leaders, as well as non-governmental organisations assisting in disaster relief could be trained in the process and implementation of

PFA. As such, a wide range of people affected by disasters will receive initial help and reassurance. Referral to additional assistance (e.g. professional counselling) is an aspect of PFA, and it may be easier to facilitate extra assistance for someone affected by a disaster if required.

7.6.2 Education and awareness on mental health and wellness

Mental health has long had a stigma attached to it, and it is seldom discussed in local communities. Issues such as stress and trauma, while still mental health issues, may be easier to discuss in the context of disaster management, particularly when they can be related to events such as floods, fires and the Covid-19 pandemic. In addition, the perception of mental health may imply a focus on serious mental illness, and not include factors such as stress management and emotional well-being. Education, training and communication around wellness and self-care could be undertaken in local communities. Topics that could be covered include stress relief, the role of exercise in health, lifestyle diseases such as diabetes and high blood pressure, sleep, creativity and the importance of rest.

From the Covid-19 questionnaire responses in Setswetla, the media was an effective means of communicating information about Covid-19. The use of the media to promote mental health and wellness could also be an effective tool to reduce the levels of stress and trauma in local communities.

7.7 Recommendations for further study

The delimitations of the study are that the study only considers the impact of exposure to disasters on the prevalence of self-reported trauma symptoms in the community. Other causes of trauma such as violent crimes, gender-based violence and accidents, which may impact the levels of trauma in the community have not been taken into consideration at this level of study.

Further investigations could include:

- The comparison of the prevalence of trauma between Setswetla and the greater Alexandra community which is not exposed to disasters such as floods and fires in the same proximity
- Investigations on the prevalence of trauma within specific groups in the community e.g. the elderly, women and foreigners

- The impacts of community-based interventions on the prevalence of stress and trauma in affected communities. Individuals could be tested on the Harvard questionnaire before and after undertaking training and implementation of mental health awareness and stress and trauma management programmes to see if trauma levels are reduced by the implementation of such programmes.

7.8 Concluding remarks

Symptoms of trauma associated with the experience of disasters have been identified in the Setswetla informal settlement. While survey respondents have used inherent coping mechanisms to manage such trauma, the fact that it is still detectable implies that more needs to be done to assist the people of Setswetla (and potentially other informal settlements and communities) to identify and manage stress and trauma. In the aftermath of a disaster, psychological first aid can be used to alleviate initial stress and trauma. While some disaster-affected people may require further professional psychological assistance, awareness of the psychological impacts of a disaster, and an early response to them, by first responders, community leaders, spiritual leaders, non-governmental organisations and the public itself could be useful in alleviating the potential progression to more serious mental health issues in some individuals. The destigmatisation of mental health, and the recognition that it encompasses stress management and emotional well-being (and not only serious mental illness), could lead to increased engagement, awareness and implementation of community plans to manage and reduce the impacts of trauma in individuals, and by extension, the broader community.

The inclusion of mental health considerations and psychological first aid in the disaster preparedness and response plans at community, municipality, district and national level is recommended.

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APPENDIX A
QUESTIONNAIRE

SECTION A – DEMOGRAPHICS

Office use

1)	Gender	_____		*1*
2)	Age group	Below 18 N/A 18–24 ☐ 25–39 ☐	40–49 ☐ 50–59 ☐ 60 and above ☐	*2*
3)	Employment status	Formal employment ☐ Self-employed ☐ Informal employment ☐ Student/learner ☐	Unemployed ☐ Retired ☐ Other (please specify) ☐ _____	*3*
4)	Marital status	Married ☐ Single (never married) ☐	Divorced/separated/ widowed ☐	*4*
5)	Nationality	South African citizen ☐ South African permanent resident ☐	South African work permit ☐ Other (please specify) ☐ _____	*5*
6)	Level of education	No formal education ☐ Primary school ☐	Secondary school ☐ Tertiary education ☐	*6*

SECTION B – SOCIO-ECONOMIC INFORMATION

7) House type	Brick/cement structure ☐ Wood/zinc structure ☐	Other (please specify) ☐ _____	*7*
8) House ownership	Owner ☐ Rent ☐	Other (please specify) ☐ _____	*8*
9) Household information	Total number of people in household ☐ Number of people in the household working ☐	Number of: Men ☐ Women ☐ Children (under 18) ☐	*9*
10) Household income (total per month)	No income ☐ R0–R500 ☐ R500–R1000 ☐	R1000–R3000 ☐ R3000–R5000 ☐ Above R5000 ☐	*10*
11) Household main income sources	Formal salary ☐ Wages (contract) ☐ Provision by relative ☐ Pension ☐	Social grant ☐ Informal earnings ☐ No income ☐ Other (please specify) ☐ _____	*11*
12) Duration of residence in area	Less than 1 year ☐ 1–5 years ☐	6–10 years ☐ 11–20 ☐	*12*

SECTION C – EXPERIENCE OF PERSONAL TRAUMATIC OCCURRENCES

13) Have you ever experienced or witnessed a disaster?	Yes ☐	No ☐	*13*
14) If yes, what have you experienced?	Tornado ☐ Epidemic ☐ Other (please specify) ☐	Fire ☐ Flood ☐ _____	*14*
15) How long ago did the event occur?	Less than 1 month ago ☐ 1–6 months ago ☐ +6 months–1 year ago ☐	+1–2 years ago ☐ +2–5 years ago ☐ More than 5 years ago ☐	*15*
16) How did the event affect you?	Loss of property ☐ Damage to property ☐ Other (please specify) ☐	Injury/health impact ☐ Health of another person ☐ _____	*16*
17) Did you receive assistance/ counselling to assist in mental recovery after the event?	Yes ☐	No ☐	*17*
18) If yes, what support/ assistance/ counselling did you receive?	Support from family/ relatives ☐ Support from friends/ community ☐	Medical assistance ☐ Professional counselling ☐ Other (please specify) ☐	

(Main)	Support from NGOs ☐ Counselling from church/ spiritual leaders ☐	_____	*18*
19) If no, why did you not receive assistance?	I did not think it was necessary ☐ I could not afford it ☐	I was not aware of any available assistance ☐ Other (please specify) ☐ _____	*19*
20) Are you aware that experiencing a traumatic event or disaster can impact your mental health?	Yes ☐	No ☐	*20*
21) Are you aware that you live in an area where you can be affected by disasters?	Yes ☐	No ☐	*21*
22) If Yes, why do you choose to live in this area?			

SECTION D - INCIDENCE OF TRAUMA AFTER EXPERIENCING A DISASTER

The list of symptoms below are sometimes experienced by people after a traumatic event. Please could you indicate if these symptoms have bothered you in the past week, and how much:

1 – Not at all

2 – A little

3 – Quite a bit

4 - Extremely

	1	**2**	**3**	**4**
Recurrent thoughts or memories of the event				
Feeling like the event is happening again				
Recurring nightmares				
Feeling detached or withdrawn from people				
Unable to feel emotions				
Feeling jumpy/easily startled				
Difficulty concentrating				
Trouble with sleeping				
Feeling on guard				
Feeling irritable or having outbursts of anger				
Avoiding activities that remind you of the traumatic event				
Inability to remember parts of the most hurtful or traumatic events				
Less interest in daily activities				

Feeling as though you don't have a future				
Avoiding thoughts or feelings associated with the traumatic events				
Sudden emotional or physical reaction when reminded of the most hurtful or traumatic events				
Feeling that the world is a very dangerous place				
Feeling that you are a bad person				
Blaming yourself for the traumatic event				
Strong feelings of fear, horror, anger, guilt, or shame when thinking about the traumatic event				
Difficulty feeling love or happiness				
Taking risks that may harm yourself or others				
Feeling like you have been damaged as a person by the traumatic event				
Feeling as if something reminds you of the trauma, but it feels like a dream, that it is not happening to you and it is not real				
Feeling people or objects around you are strange and not real				
TRAUMA SCORE				*22*

SECTION E – COPE QUESTIONNAIRE

This section measures how you have been coping with the disaster. Indicate how much your reaction is described by each statement from:

1 - I usually don't do this at all

2 - I usually do this a little bit

3 - I usually do this a medium amount

4 - I usually do this a lot

	1	2	3	4
I have been making an effort to do something about my situation				
I have been trying to come up with a plan to help my situation				
I have been trying to see the situation in a different light – more positive				
I have accepted the reality of what has happened				
I have been making jokes about what has happened				
I have been trying to find comfort in my religious/spiritual beliefs				
I have been getting emotional support from others				
I have been getting advice or help from other people about what to do				
I have been turning to work or other activities to keep my mind off things				
I have been saying to myself "this isn't real"				
I have been saying things to let my unpleasant feelings escape				

I have been using alcohol or drugs to make myself feel better				
I have been giving up trying to deal with the situation				
I have been criticising myself				
I have been taking action to make the situation better				
I have been thinking hard about which steps to take				
I have been looking for something good in what is happening				
I have been learning to live with it				
I have been making fun of the situation				
I have been praying or meditating				
I am getting comfort and understanding from someone				
I have been getting advice and help from other people				
I have been doing other things to think about it less (daydreaming, sleeping, shopping)				
I have been refusing to believe that it has happened				
I have been expressing my negative feelings				
I have been using alcohol or drugs to help me get through the situation				
I have given up attempting to cope				
I have been blaming myself for the things that happened				
COPE SCORE		*23*		

SECTION F – COVID-19 QUESTIONNAIRE

23) Have you received any information about COVID-19?	Yes ☐ If so, where? _____	No ☐	*24*
24) Are you aware of the symptoms of COVID-19?	Yes ☐	No ☐	*25*
25) Has anyone in your household had symptoms of or been diagnosed with COVID-19?	Yes ☐	No ☐	*26*
26) Have you had any economic loss from the lockdown e.g. job loss?	Yes ☐	No ☐	*27*
27) Has it been possible to stay in your home during lockdown?	Yes ☐	No ☐	*28*
28) Have you been able to practice social distancing?	Yes ☐	No ☐	*29*
29) Do you have adequate access to soap and water for washing your hands?	Yes ☐	No ☐	*30*
30) What is your main concern during this time of COVID-19?			

APPENDIX B
ETHICAL CLEARANCE

UNIVERSITY OF THE FREE STATE
UNIVERSITEIT VAN DIE VRYSTAAT
YUNIVESITHI YA FREISTATA
UFS UV

GENERAL/HUMAN RESEARCH ETHICS COMMITTEE (GHREC)

11-Nov-2020

Dear Ms Colleen Parkins

Application Approved

Research Project Title:
THE PREVALENCE OF TRAUMA SYMPTOMS AND COPING USED IN A DISASTER-AFFECTED COMMUNITY IN JOHANNESBURG, SOUTH AFRICA

Ethical Clearance number:
UFS-HSD2020/1433/0911

We are pleased to inform you that your application for ethical clearance has been approved. Your ethical clearance is valid for twelve (12) months from the date of issue. We request that any changes that may take place during the course of your study/research project be submitted to the ethics office to ensure ethical transparency. furthermore, you are requested to submit the final report of your study/research project to the ethics office. Should you require more time to complete this research, please apply for an extension. Thank you for submitting your proposal for ethical clearance; we wish you the best of luck and success with your research.

Yours sincerely

Dr Adri Du Plessis
Chairperson: General/Human Research Ethics Committee

205 Nelson Mandela Drive
Park West
Bloemfontein 9301
South Africa

P.O. Box 339
Bloemfontein 9300
Tel: +27 (0)51 401 9337
duplessisA@ufs.ac.za
www.ufs.ac.za

APPENDIX C
RESEARCH INFORMATION LEAFLET AND CONSENT FORM

UNIVERSITY OF THE FREE STATE
UNIVERSITEIT VAN DIE VRYSTAAT
YUNIVESITHI YA FREISTATA
UFS UV

RESEARCH STUDY INFORMATION LEAFLET AND CONSENT FORM

DATE
12 November 2020

TITLE OF THE RESEARCH PROJECT

THE PREVELANCE OF TRAUMA SYMPTOMS AND COPING USED IN A DISASTER-AFFECTED COMMUNITY IN JOHANNESBURG, SOUTH AFRICA

PRINCIPLE INVESTIGATOR / RESEARCHER(S) NAME(S) AND CONTACT NUMBER(S):

Colleen Parkins *2018256202* *076 228 9875*

FACULTY AND DEPARTMENT:

Faculty of Natural and Agricultural Science
Disaster Management Training and Education Centre (DiMTEC)

STUDYLEADER(S) NAME AND CONTACT NUMBER:

Dr Edwin Du Plessis (duplesed@ufs.ac.za)
051 407 9464

WHAT IS THE AIM / PURPOSE OF THE STUDY?

The aim of the study is to assess the prevalence of symptoms of stress and trauma and coping used in a disaster-affected community. The study will be done in the Setswetla informal settlement in Alexandra, Johannesburg, which has been affected by disasters such as floods, shack fires and Covid-19.

WHO IS DOING THE RESEARCH?

I am a Masters Student in Disaster Management at the University of the Free State, and this study is part of my degree.

HAS THE STUDY RECEIVED ETHICAL APPROVAL?

This study has received approval from the Research Ethics Committee of UFS. A copy of the approval letter can be obtained from the researcher.

Approval number: *UFS-HSD2020/1433/0911*

205 Nelson Mandela Drive/Rylaan, Park West/Parkwes, Bloemfontein 9301, South Africa/Suid-Afrika
P.O. Box/Posbus 339, Bloemfontein 9300, South Africa/Suid-Afrika, T: +27(0)51 401 9111, www.ufs.ac.za

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YUNIVESITHI YA FREISTATA
UFS UV

WHY ARE YOU INVITED TO TAKE PART IN THIS RESEARCH PROJECT?

The study will consist of 360 surveys in the Setswetla community. The researcher requires adults (18 years old and above) who are resident in Setswetla to voluntarily participate in the study. No children will be allowed to participate. Respondents in different areas of the community will be invited to participate.

WHAT IS THE NATURE OF PARTICIPATION IN THIS STUDY?

The study consists of a questionnaire with various parts. The sections include basic questions about yourself (where you live and work), and then questions about disasters you may have experienced such as floods or shack fires. The survey also asks whether you have experienced trauma symptoms from these experiences, and if so, how you cope with them. The last section is a voluntary section on your experiences during the Covid-19 pandemic. The questionnaire should take about half an hour to answer.

CAN THE PARTICIPANT WITHDRAW FROM THE STUDY?

The participation in this study is voluntary. Your name will not appear on the questionnaire, or in the research report. A separate document with the names of respondents linked to question numbers will be kept so that the questionnaire can be identified if anyone decides to withdraw from the study. You can withdraw from participating in the study at any stage by contacting any of the following people:

Colleen Parkins (researcher)	076 228 9875	2018256202@ufs4life.ac.za
Dr E du Plessis (supervisor)	051 407 9464	duplesed@ufs.ac.za

WHAT ARE THE POTENTIAL BENEFITS OF TAKING PART IN THIS STUDY?

There has been little research done on the impacts of disasters on the lives of people living in local communities. The research will contribute to assessing whether people in the community are living with stress and trauma as a result of experiencing or witnessing disasters. The research will also look ways in which people cope with this stress. Living with stress and trauma has the potential to negatively impact peoples' lives and the results of the survey could assist with future education programmes on recognizing and coping with stress and trauma.

WHAT IS THE ANTICIPATED INCONVENIENCE OF TAKING PART IN THIS STUDY?

It is recognised that talking about a traumatic event may cause a sad or difficult memory about the event. If this makes you feel uncomfortable, you can stop participating in the process. A leaflet will be given to you which provides the contact details of a number of organisations that can be contacted should you require assistance. The community disaster management volunteers will also be provided with the information.

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WILL WHAT I SAY BE KEPT CONFIDENTIAL?

The results of the survey will be used in a research report, but individual names will not appear in the report. There will be no way of identifying your information in the report. Your answers may be reviewed by people responsible for making sure that research is done properly, including the researcher, supervisor, and members of the Research Ethics Committee. Otherwise, records that identify you will be available only to people working on the study, unless you give permission for other people to see the records. The anonymous data from this study will be used in the masters dissertation, and may also be published in a scientific journal or at a conference.

HOW WILL THE INFORMATION BE STORED AND ULTIMATELY DESTROYED?

Hard copies of your answers will be stored by the researcher for a period of five years in a locked cupboard/filing cabinet at the researcher's office. For future research or academic purposes; electronic information will be stored on a password protected computer. Future use of the stored data will be subject to further Research Ethics Review and approval if applicable.

WILL I RECEIVE PAYMENT OR ANY INCENTIVES FOR PARTICPATING IN THIS STUDY?

Answering the survey will be confidential, and should take about half an hour. There will be no payment or financial incentives for participating in the study.

HOW WILL THE PARTICIPANT BE INFORMED OF THE FINDINGS / RESULTS OF THE STUDY?

If you would like to be informed of the final research findings, please contact Colleen Parkins on 076 228 9875 or e-mail 2018256202@ufs4life.ac.za. The findings are accessible for one year. Should you require any further information or want to contact the researcher about any aspect of this study, please contact Colleen Parkins on the contact details above. Should you have concerns about the way in which the research has been conducted, you may contact Dr Edwin Du Plessis on 051 407 9464 or at duplesed@ufs.ac.za, or Ms C Vercueil (Research Co-ordinator, UFS) on 051 401 7083

Thank you for taking time to read this information sheet and for participating in this study.

UNIVERSITY OF THE FREE STATE
UNIVERSITEIT VAN DIE VRYSTAAT
YUNIVESITHI YA FREISTATA
UFS UV

CONSENT TO PARTICIPATE IN THIS STUDY

I, _____ (participant name), confirm that the person asking my consent to take part in this research has told me about the nature, procedure, potential benefits and anticipated inconvenience of participation.

I have read (or had explained to me) and understood the study as explained in the information sheet. I have had sufficient opportunity to ask questions and am prepared to participate in the study. I understand that my participation is voluntary and that I am free to withdraw at any time without penalty (if applicable). I am aware that the findings of this study will be anonymously processed into a research report, journal publications and/or conference proceedings.

I have received a signed copy of the informed consent agreement.

Full Name of Participant: _____

Signature of Participant: _____ Date: _____

Full Name(s) of Researcher(s): _____

Signature of Researcher: _____ Date: _____

APPENDIX D
CONSENT LETTER FROM CITY OF JOHANNESBURG DISASTER MANAGEMENT

City of Johannesburg
Public Safety Department

Disaster Management Centre
140 Linden Road
Sandton
2092

PO Box 1496
Johannesburg
South Africa
2000

Tel: +27(0) 11 222 8293
E-mail: cojdmc@joburg.org.za
www.joburg.org.za

8th October 2020

FROM	TO	CC
Mr. Sepheu Nkoele Disaster Management Region E	The Research Ethics Committee University of the Free State	

To whom it may concern

Colleen Parkins, a Masters student in Disaster Management at the University of the Free State intends to do her research project on "The prevalence of trauma symptoms and coping used in a disaster-affected community in Johannesburg, South Africa", in the informal settlement of Setswetla in Alexandra, which falls within Region E of the City of Johannesburg. She has approached the City of Johannesburg Disaster Management Centre to inform us about the project and to request assistance with access to Setswetla. This office confirms that we are able to assist her with access to Setswetla and the Disaster Management community volunteers from the area are available to assist her with conducting the surveys.

Yours sincerely

Mr. S Nkoele
Manager
Disaster Management
Region E
Telephone: 011 2228287
Cell: 082 460 0336
Fax:
E-Mail: sepheun@joburg.org.za

APPENDIX E
CONSENT LETTER FROM
WARD COUNCILLOR FOR SETSWETLA

CITY OF JOHANNESBURG
METROPOLITAN MUNICIPALITY
COUNCIL LEGISLATURE

Tel: (011) 582 1590
Fax: (011) 582 1588
Cell: 082 938 8804

City of Johannesburg
Region. E
Ward 109

OFFICE OF THE COUNCILLOR LIAQUAD EBRAHIM.

21st March 2020

Good Day Colleen

I acknowledge receipt of your letter requesting to do a research in the informal settlements of Swetla.

I fully support your request and I wish you well in your studies and in your research.

Should you require any information regarding the informal settlement you most welcome to contact me.

All the best.

Thanking you.

Clr L. Ebrahim.

APPENDIX F
TRAUMA INFORMATION LEAFLET

A person who has experienced or witnessed a disaster (e.g. a flood, shack fire, epidemic) may experience symptoms of trauma related to the event. These can include:

- Disturbed sleep (nightmares, not able to sleep, continuously tired)
- Difficulty with concentrating and/or working
- Flashbacks, avoiding the area where the event took place
- Frequent headaches
- Using alcohol or drugs to cope
- Missing work frequently or coming in late and leaving early
- Easily startled, irritated or angry

If you are experiencing any of these symptoms, please consult your local clinic (e.g. Alexandra Community Health Centre, 31 Arkwright ave, Alexandra or the 4th ave Clinic, Alexandra). Assistance can also be obtained from:

The South African Depression and Anxiety Group (SADAG)
http://www.sadag.org/ Tel: (011) 234 4837

Emthonjeni Community Psychology Clinic (Wits University)
Ms Paballo Lepota Tel: +27 (0)11 717 4513
Email: paballo.lepota@wits.ac.za
https://www.wits.ac.za/shcd/emthonjeni-centre/clinical-services/emthonjeni-community-psychology-clinic/

FAMSA Tel: (011) 975 7106/7
Email: national@famsa.org.za
http://famsa.org.za/

Department of Social Development Substance Abuse Line (24hr)
Tel: 0800 12 13 14
SMS: 32312

Cipla WhatsApp chat line
076 882 2775

APPENDIX G
EDITOR'S LETTER

Nicolene Barnard

Proofreading | Technical Editing | Metadata Specialist | Indexing

PO Box 26959, Langenhovenpark, 9330 | 073 339 7739 |
Nicolene.Barnard1@gmail.com

19 November 2021

CONFIRMATION OF EDITING AND PROOFREADING

I hereby confirm that I have done the technical layout and language editing for the following dissertation:

Student:	Colleen Ann Parkins
Title:	The prevalence of trauma symptoms and coping used in a disaster-affected community in Johannesburg, South Africa
Degree:	Master of Disaster Management
Department:	Disaster Management Training and Education Centre for Africa, Faculty of Natural and Agricultural Sciences, University of the Free State

My work for the student included the technical layout of the document, as well as language editing for grammar, punctuation, spelling, and sentence structure. I tried to keep as much as possible of the student's own writing style while making sure that the student's intended meaning was not altered in the editing process. I also checked the list of references making sure that dates, spelling, and names used in the text are consistent with those listed in the reference list.

I have a B.Bibl. (Hons.) Degree and have been working as a metadata specialist and librarian for 29 years. I am an expert in the field of bibliographic information and resources. I have also completed a 10-week Copy-Editing course at the University of Cape Town.

Disclaimer: The ultimate responsibility for accepting or rejecting the changes and recommendations rests with the student and I cannot be held responsible for any layout or language issues that might have emerged as a result of subsequent amendments to the text.

Yours sincerely,

Nicolene Barnard

APPENDIX H
PLAGIARISM REPORT

Masters dissertation

ORIGINALITY REPORT

19%	11%	7%	13%
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