An investigation into the relationship between exposure to violence, resilience and PTSD in a sample of psychology students at the University of the Western Cape

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Research Project
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Abstract

Post-apartheid South Africa has been marked by high levels of trauma resulting from exposure to violence. Many South Africans are therefore at risk for developing Posttraumatic Stress Disorder (PTSD). Despite a large body of research identifying various protective factors which may influence an individual's response to a traumatic event, a gap in South African research on the relationship between exposure to multiple traumatic experiences, protective factors and the development of PTSD was identified. Therefore, located within the systems theory framework, the aim of this study was to investigate the relationship between demographic characteristics, types of exposure to trauma and resilience associated with the development of posttraumatic stress (PTS) when there are multiple exposures to trauma. A quantitative, cross-sectional, exploratory study on 158 psychology students at the University of the Western Cape was undertaken. Using a non-random, convenience sampling method, data were collected by means of four self-report questionnaires namely; a biographical questionnaire, the Life Events Checklist for DSM-5 (LEC-5), the Resilience Scale for Adults (RSA), and the Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5). The study utilised both descriptive analyses and logistic regression modelling to address the research questions. Results from the logistic regression analyses showed that resilience (β = 1.024, p = .001) and direct exposure to trauma (β = .903, p = .049) were significant predictors for the development of PTS. However, the two demographic variables and indirect exposure were non-significant in this study. This study hopes to contribute toward intervention efforts aimed at developing protective factors in response to multiple exposures to trauma.

Keywords: PTSD; trauma; exposure; resilience; protective factors; ecological systems theory; South Africa; exploratory study; violence; risk

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Plagiarism Declaration

I declare that "*An investigation into the relationship between exposure to violence, resilience and PTSD in a sample of psychology students at the University of the Western Cape"* is my own work, that it has not been submitted before for any degree or examination in any other university, and that all the resources I have used or quoted have been indicated and acknowledged as complete references.

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Carla Anne Nortje Date

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CHAPTER 1

OVERVIEW OF THE STUDY

Direct and indirect exposure to violence is linked to the development of posttraumatic stress disorder (PTSD) and related posttraumatic stress (PTS) symptomatology (Yehuda, McFarlane, & Shalev, 1998). In recent studies, it is indicated that the majority of South Africans are exposed to high levels and multiple incidences of trauma (Suliman et al., 2009). This results in an increased vulnerability to developing PTSD which may negatively influence various aspects of their wellbeing (Atwoli et al., 2013).

Literature often focuses on the negative impacts of exposure to trauma (e.g., dysfunctional behaviour or psychological disorders) and associated risk factors (Hjemdal, Friborg, Stiles, Rosenvinge, & Martinussen, 2006). However, many individuals fare well when exposed to a traumatic event and do not develop PTS symptomatology or other psychopathological patterns (Agaibi, 2005). Research in this area often focuses on individual and environmental characteristics (i.e., protective factors) which may influence (i.e., mediate) an individual's response to a traumatic event, and whether the development of PTSD symptomatology takes place (Agaibi, 2005; Hjemdal et al., 2006). Individuals who are able to overcome adversity (e.g., exposure to a traumatic event) by utilising available protective factors (personal and environmental) are labelled as resilient (Hjemdal et al., 2006). Resilience research is crucial for the South African context, and this study will therefore investigate the extent to which protective factors mediate PTS outcomes in a sample of students at the University of the Western Cape.

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1.1 Motivation and Rationale for the Study

The study was undertaken for three main reasons. Firstly, numerous studies have found exposure to traumatic events to be highest among young adults who are therefore considered a high-risk group and are also at an increased risk in developing subsequent psychopathology (Mc Gowan & Kagee, 2013; Suliman, Kaminer, Seedat, & Stein, 2005; Williams et al., 2007). However, to-date, few studies have been conducted among South African university students (Hoffman, 2002; Mc Gowan & Kagee, 2013). Secondly, South Africa has especially high rates of exposure to trauma with the majority reporting multiple traumas (Atwoli, Stein, Koenen, & McLaughlin, 2015). While there has been a recent focus on exposure to trauma in South Africa (see Suliman et al., 2009), the role that protective factors play in negative outcomes is relatively sparse. Thirdly, while studies do show a relationship between resilience, trauma and the development of psychopathology (Hjemdal et al., 2006), the extent to which this is applicable and relevant for multiple traumas in low-income contexts is less clear as the majority of studies are from the Euro-American context and are focused on single exposure to trauma or chronic stressors in high income contexts. Therefore, the relevance for diverse contexts like South Africa is less clear. The studies by Veenendaal (2006) and Mokoena (2010) are exceptions. They shed some light on the link between resilience, race and trauma, and explore the relationship between socioeconomic status (SES), gender, and exposure to violence within the South African context, respectively. This study, however, extends this research and focuses on whether differences in types of exposure to trauma have an effect on the development of PTS symptoms, and secondly, which protective factors play a mediating role in the negative outcome when exposed to multiple traumas.

Therefore, the rationale of this study is to expand on the body of research regarding resilience. While previous studies (e.g., Hjemdal et al., 2006; Masten, 1994; Ungar, 2013)

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help better understand the relationship between demographic factors, resilience, trauma, and negative outcomes, the extent to which this is applicable within contexts of multiple traumas has not been investigated. The need for this is pertinent in the South African context where there are high incidences and multiple exposures to trauma where the differences in exposure to trauma and its relationship to resilience as well as psychopathology within a diverse context is rather unknown. This is to add to the existing knowledge on the influence that resilience may have in the relationship between trauma and psychopathology.

Therefore, when particular risk, protective and resilience factors have been identified as contributors toward the relationship between trauma and PTS, steps may be taken to address such factors in order to decrease risk and improve psychological wellbeing among students. As a resilience study, this study can help better inform intervention efforts to develop protective factors in response to exposure to trauma in low income contexts.

1.2 Aim of the Study

The main aim of the study was to explore the extent to which resilience mediates negative outcomes with regards to PTS. A secondary aim of the study was to investigate how demographic variables and differences in terms of types of exposure to trauma also mediate negative outcomes. Therefore, the overall aim was to investigate the relationship between certain sociodemographic factors, types of exposure to trauma and resilience in relation to the development of posttraumatic stress (PTS) in order to identify and better understand possible risk and protective factors associated with resilience.

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1.3 Research Questions

In light of the aim and motivation for the study, there are three research questions accordingly: 1) *What is the role of demographic factors with regards to the development of PTS when there is exposure to trauma?*; 2) *What is the relationship between type of exposure*

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and the development of PTS?; and 3) *Is a higher level of resilience associated with lower levels of PTS when there is exposure to trauma?*

1.4 Delineation of Chapters

Chapter one is an introduction and briefly discusses exposure to trauma, the development of PTS and the mediating role resilience, protective and risk factors play in the South African and international context.

Chapter two reviews relevant literature pertaining to the present study as well as attempts to identify key gaps in the area. Broadly, the chapter reviews the literature on resilience, trauma, and PTS, as well as demographic characteristics (specifically, gender, SES, age, race and religion), in relation to exposure to trauma and PTS. Additionally, it provides research within the international and South African context. The final section of this chapter examines Bronfenbrenner's ecological systems theory (1977), the theoretical basis used for this study.

Chapter three discusses the methodology used for this study in light of the research questions, in particular; research framework, research design, research setting and population, sampling strategy and participants, the procedure for data collection, instruments, data analysis procedures, and ethical considerations.

Chapter four presents the results of the study including descriptive statistics, a brief overview of internal reliability consistencies (Cronbach alpha), a correlation analysis and the logistic regression analysis.

Chapter five is a discussion of the results in Chapter four. The discussion combines the results with the research questions of the study, relevant literature and theoretical framework. Lastly, it highlights the limitations of the study and includes recommendations for future research.

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CHAPTER 2

LITERATURE REVIEW

RESILIENCE, TRAUMA AND POSTTRAUMATIC STRESS

This chapter reviews the literature on resilience, trauma and posttraumatic stress (PTS). Resilience is defined as a dynamic construct, comprising of various interrelated social and personal factors which play an important mediating effect on negative outcomes when exposed to various types of adversities (Cicchetti, 2010). Both risk and protective factors are considered influential in the adversity-outcome link. Therefore, this chapter aims to explore the concept of resilience in relation to adversity and negative outcomes, referring specifically to exposure to trauma and the development of PTS, respectively.

Firstly, a definition of resilience is given. Following this, resilience is discussed in light of specific social- and personal-related protective factors that constitute the construct. This is followed by a broad discussion of risk and protective factors outlined in resilience research. Thirdly, risk factors associated with trauma are explored, specifically the variations in: 1) the types of traumatic events, 2) the different levels of exposure to trauma, and 3) the cumulative effect of trauma. Consequently, an exploration of the influence the various trauma-related risk factors has on negative outcomes (i.e., PTS) is discussed. Next, the literature review discusses the context of trauma by exploring numerous demographic and systemic factors in light of trauma exposure and the development of PTS. Lastly, the ecological systems framework as the theoretical basis for this study is discussed.

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2.1 Resilience: A Dynamic Construct

The concept of resilience in research has evolved over the last 40 years, but a unanimous decision relating to its conceptual and operational definition has still not been reached (Liu, Wang, Zhou, & Li, 2014). According to Kaplan (1999), this is mainly due to the numerous inconsistencies in defining resilience. For example, resilience remains defined in relation to its response to danger or as the end result of being exposed to adversity, thus, directly linking resilience with consequence. The inconsistencies, therefore, remain due to the variation in consequences wherein the definition of resilience lies, and due to the differences in risk and protective factors that either comprise resilience or are the end result of resilience (Kaplan, 1999).

In a recent systematic study (Pangallo, Zibarras, Lewis, & Flaxman, 2015), resilience was conceptualised as either: a) a process (i.e., focus on the internal and external resources); b) a state (i.e., adopt positive psychology constructs such as hope and optimism); c) a trait (i.e., a set of internal, positive personality characteristics such as self-efficacy); or d) an outcome (i.e., the ability to "bounce back" after a traumatic event). This reaffirms the inconsistencies in, firstly, defining resilience, and secondly, the operationalization thereof. Pangallo et al. (2015) called for a conceptual development to explain resilience as a dynamic and interactive phenomenon in order to better understand and report on the construct.

Aside from its conceptual and/or operational definition, across literature it is argued that a resilient individual is able to tolerate hardships (e.g., Rutter, 1987); determined to survive (e.g., Bandura, 1989); able to recover from adverse conditions (e.g., Tugade & Fredrickson, 2004); and able to adapt to changing circumstances (e.g., Bonanno, 2004). Therefore, as a broad definition, individuals who are able to overcome adversity and maintain normal development despite encountering immensely stressful events (e.g., abuse, maltreatment, trauma) are labelled as resilient (Cowen & Work, 1988; Friborg, Hjemdal,

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Rosenvinge, & Martinussen, 2003; Rutter, 1985). In keeping with this notion, resilience requires two aspects to occur: 1) an individual to be exposed to major risk or adversity; and 2) for them to achieve an outcome better than what was expected. Therefore, for the purpose of this study, Rutter's (1987) definition of resilience is adopted. That is, resilience relates to how some individuals are defeated by overwhelming circumstance and adversity, whereas others overcome similar stressful situations and life-threatening danger.

Furthermore, many define resilience as a static or predetermined construct in that it is simply a combination of unique individual qualities (e.g., Bandura, 1989; Bensimon, 2012). However, this definition neglects the consideration of external factors that may influence or contribute toward the development of resilience (Rutter, 1985). In accordance with Rutter's (1987) perspective, resilience is not a fixed or static quality of an individual in that those who are able to adapt and cope with stressors may not be able to when circumstances change and visa versa (i.e., resilience may develop or be altered). This idea regarding the influence of circumstances takes into account possible access and utilisation of social resources or, alternatively, environmental factors which may inhibit a once resilient individual.

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Expanding on this, resilience has therefore often been studied in light of risk and protective factors in that recovery from adversity or trauma is considered to be a dynamic, complex biopsychosocial process which is dependent on life context (e.g., the severity of adversity or exposure to trauma; Stewart, Reid, & Mangham, 1997), and numerous internal (e.g., attitude and temperament) and external (e.g., community and neighbourhood) factors (Greene, 2014). In line with this, Masten (2001) states that resilience is more common than initially thought and is consequently an ability that all individuals are able to achieve. This view has led to a recent shift in focus from looking at the negative consequences of adversity to the mediating role protective factors play. It is argued that resilience does not develop in the absence of risk factors but rather when protective processes and factors are present. That

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is, resilience develops when there is a correct combination of protective factors that inhibits the negative effect of exposure to risk factors (Hjemdal et al., 2006; Werner & Smith, 1992). In general, resilient individuals are considered to be more flexible and cope by utilising several personal or environmental protective resources (Greene, 2014). So, by identifying risk and protective factors within an individual's context, researchers are able to recognise an integrated, interactive process which shapes a response to adversity.

Ecological and cultural approaches to resilience (Ungar, 2008; Ungar, 2014) have substantially broadened the conceptualisation of resilience. They suggest it is the greater contextual factors rather than solely individual characteristics that form resilience. They compliment the focus on individual resilience and suggest that far more work is necessary on the wider social conditions within which resilience is found. The implications of this are that interventions addressing individual resilience should be complimented by interventions that also intervene with social conditions. Luthar, Cicchetti and Becker (2000) reiterated the importance of a dynamic conceptualisation of resilience, however, also highlighted the potential limitations and misgivings to such an approach and construct. The major concerns were generally categorised into three broad themes. Firstly, the debate surrounding the ambiguities in definitions and terminology, as discussed earlier. Secondly, Luthar et al. (2000) acknowledge that there can be considerable instability in the phenomenon of resilience, for individuals at high risk rarely maintain consistently positive adjustment over the long term and show fluctuations over time. This leads into the last theme highlighted in research, that is, the theoretical concerns include mainly questions pertaining to the utility of resilience as a scientific construct. It is argued that progress in the area of resilience will remain constrained as long as studies remain largely empirically driven as opposed to theoretically based, with little conceptual recognition of the importance of multiple and differing contexts (Luthar et al., 2000). In order to address these concerns, Luthar et al.

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(2000) recommend that all scientific reports must include specific statements of the criteria used to operationalize resilience. Secondly, researchers should avoid generalised statements while describing their findings, limiting their conclusions to the precise domains in which resilience is manifested. Lastly, resilience researchers should present their studies within a clearly delineated theoretical framework within which hypotheses about salient vulnerability and protective processes are considered with regards to the specific adversity under study. These recommendations will be considered in the present study.

In summary, resilience is multidimensional in that it is not solely a fixed or static quality of an individual (e.g., personality traits). Rather, resilience includes environmental and/or systems-level factors such as access to social resources. Secondly, resilience is considered to be a complex biopsychosocial process in that it develops from an interaction between both risk and protective factors within any given environment (i.e., resilience may be altered or vary between contexts). Therefore, in the following subsections, factors and processes related to resilience are explored. This is followed by a broad definition of risk and protective factors in order to better understand and explore contextual influences.

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2.2 Resilience: Related Factors and Processes

Most studies on resilience have focused on children and fewer on adults (Taormina, 2015). The children-focused studies have attempted to understand how children who grow up in long-term, adverse circumstances successfully prevent the development of psychological disorders (Friborg et al., 2003). For studies dedicated to understanding adult resilience, longitudinal studies such as the Lundby study (Cederblad, 1996) and the Kauai study (Werner, 1993) highlight salient characteristics of resilient individuals who overcome adverse conditions. These are referred to as protective factors which range from demographic characteristics (e.g., age, gender, socioeconomic status, education), personal characteristics (e.g., flexibility, adaptability), to the management of environmental resources

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(i.e., social support systems; e.g., coping strategies, family support, and religious support). These aspects are considered protective as they mediate the effect an adverse event has on an individual and/or are utilised by the individual in times of duress (Ginzenko & Fisher, 1992).

For the purpose of this study, resilience will be explored in light of individual- and environmental-related factors. That is, resilience is conceptualised as personal (trait) factors, social resources, and external influences (e.g., demographic characteristics) that play a role in the mediation between adversity and negative outcomes. These definitions are not exhaustive of all conceptualizations of resilience. However, they address the flexibility and timing of resilience, incorporate major trends in this field of research, and hold clinical significance to the identification and response to resilience. Importantly, although the concepts of protection and resilience are typically understood to be factors and processes that mediate the effect of risk, the concepts are elusive and are often used interchangeably (Fraser, Galinsky, & Richman, 1999). Therefore, an ecological construct of resilience is explored in order to, further, differentiate between 'protective factors' and 'resilience'.

According to Taormina (2015), traditional risk theories have to a large extent neglected personal characteristics (e.g., determination, endurance, adaptability, and recuperability). Taormina (2015) suggests that human resilience may be an intrinsic property that all individuals possess (at different levels) which, in turn, influence their response and adaptability to a traumatic event. Trait resilience is defined as "a generalized, characterological quality of an individual [that] does not simply apply to a highly specific, one-time behaviour" (Block & Kremen, 1996; p.351). The view is that resilience is a specialized ability that is innate and stable to select individuals. A recent meta-analysis determined that trait resilience was constant as it provided a "stable" prediction of mental health compared to external protective factors (Hu, Zhang, & Wang, 2015). The results from a study undertaken by Bensimon (2012) on the role trait resilience plays with regards to the

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mediation between trauma and PTSD showed that higher resilience as a trait is negatively associated with PTSD. From this view, a constellation of traits (e.g., optimism) result in resilience that reduces the likelihood of PTSD (Bensimon, 2012). With regards to South African research on trait resilience, in a review undertaken by Theron and Theron (2010), it was reported in 17 of the 23 articles that resilience was supported by individual factors. Specifically, personality traits such as empathy, goal orientation, optimism, conservatism, autonomy, self-regulation, conscientiousness, enthusiasm, extroversion, and assertiveness. In addition to personality traits, resilience was linked to other individual characteristics such as problem solving skills, positive cognitive appraisal, internal locus of control, a sense of self-worth, and a preference for socially-appropriate behaviour (Theron & Theron, 2010).

However, recent research has challenged the conceptualization of resilience as a trait, mainly because the conceptualization excludes cultural, social and environmental factors that influence individual factors (Ungar, 2008; Ungar, 2014). Although most resilience literature has focused on individual-level psychosocial factors that promote trait resilience (e.g., Bensimon, 2012), theorists and researchers have begun to examine social and systems-level factors implicated in resilience (e.g., Sippel, Pietrzak, Charney, Mayes, & Southwick, 2015). Social resilience can take many forms, including functional support (i.e., the experience that social interactions have been beneficial in terms of emotional needs); emotional support (i.e., behaviours from others that facilitates feelings of comfort and feelings of being cared for); structural support (i.e., frequency of social interactions and the size of an individual's social network); material support (i.e., services and goods that assist in solving practical problems); and access to information (i.e., information that may help individuals cope with current difficulties or understand their crisis; Sippel et al., 2015).

Literature has shown positive associations between mental health and poor social support (Thoits, 2011). It indicates that the mental and physical health of one individual is

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intimately tied to others with whom that individual is connected. Two studies in particular have demonstrated the importance of families and communities with regards to supporting military veterans, for whom poor homecoming support is a significant risk factor for the development of PTSD (Johnson et al., 1997; Koenen, Stellman, Stellman, & Sommer, 2003). In terms of South African related resilience research, resilience has also been encouraged by protective resources embedded in families (Theron & Theron, 2010). Smukler (cited in Theron & Theron, 2010) reported that a mother's capacity to bond with her child supported the development of resilience, especially in violent contexts. Parenting styles (i.e., being authoritarian or permissive) have been reported to embolden resilience variably. For example, parenting styles correlated with race in that mothers who employed democratic-authoritative parenting styles encouraged the development of emotional coping strategies and a sense of coherence and in White youth. Alternatively, the same style encouraged Black youth to develop negative and problem-focused coping strategies (Kritzas & Grobler, cited in Theron & Theron, 2010). Furthermore, supportive family relationships were thought to buffer violence (Barbarin, Richter, & deWet, 2001).

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Protective resources anchored in the community have also been identified as contributing toward the development of resilience in South Africa. The resource most emphasised in literature pertained to schools (e.g., Barbarin et al., 2001). Teachers were identified as supportive, non-discriminatory, fair and motivating, as well as role models. Schools themselves enabled resilience in that they provided learners with a safe and secure space (Theron & Theron, 2010).

In terms of the broader systems-level influence, much can be ascribed to cultural phenomena, for example, the world-view of 'Ubuntu'. Ubuntu is an African philosophy that emphasises humanity and group solidarity which includes compassion, dignity, and respect for others (Mokgoro, 2017). Theron (2007) noted that the traditional values of Ubuntu

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encouraged resilience among the township participants. They found that Ubuntu may encourage positive human relations and active social support. In doing so, it fosters adaptive coping during times of adversity. However, this philosophy cannot be the only cultural and contextual resource available for resilience promotion. It is argued that researchers need to pursue additional factors and processes indigenous to the South African context and the various cultures (Theron & Theron, 2010; Theron, 2007).

For example, religion may be considered to be an influential factor with regards to trauma and psychological recovery thereof in that religion, as a coping mechanism and resource, significantly predicts outcomes to life stressors (Leaman & Gee, 2012). Within religion, the coping strategies and beliefs are based on hope, faith, and trust in spiritual compassion. This form of religious coping has been termed by researchers as positive religious coping (Chatters, 2000). Alternatively, negative religious coping involves thoughts about God which are based on fear, anger, and doubt. The former type reflects a spiritual connectedness with others and a secure relationship with God, whereas the latter reflects an insecure relationship with God. These methods of coping are theorized to represent exclusive but interconnected features and are argued to explain which religious aspects reduce or exacerbate mental health difficulties (Chatters, 2000; Hackney & Sanders, 2003). It is argued that negative religious coping may be detrimental to mental health whereas positive religious coping tends to be favourable (Ano & Vasconcelles, 2005).

In summary, although resilience has been defined broadly, resilience is conceptualised as a multidimensional process which results from an interplay between individual characteristics and context-specific environmental factors. In line with the aim of this study, resilience is conceptualised as a set of personal resources and social support structures that may act as a mediator between an individual's exposure to a traumatic event and the development of PTS symptomatology. Importantly, findings from South African studies

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support Masten's (2001) claim that resilience is nurtured by everyday resources, which are common and available to all individuals, families, communities, and cultures, across diverse contexts. Therefore, the conventional origins of South African resilience suggest that it is not a rare occurrence or phenomena. In turn, active steps can be taken to develop and sustain resilience among individuals who are at an increased risk by typical and extraordinary adversity. This may be done by firstly identifying particular risk and protective factors associated with specific contexts, and secondly, to consider how these factors may influence the development of resilience. Therefore, in the following subsection, risk and protective factors are generally defined. This is followed by an overview of trauma exposure and PTS within the international and South African context.

2.3 Risk and Protective Factors

In both academic research and popular press, the related concepts of risk, protection, and resilience have emerged as important constructs regarding the conceptualisation of social and individual-health problems. The concept of risk is pervasive in trauma-related research. The term typically conveys the idea that an individual, social group, family, organisation or neighbourhood is likely to experience a negative outcome (Fraser et al., 1999). In social research, risk was described as something that hinders or prohibits normal functioning and development (Masten, 1994). Furthermore, the presence of a risk factor may lead to negative and possibly harmful outcomes. It has been argued that in contributing toward prevention research, the most significant development occurs in the identification of various risk factors as they are thought to be linked with a multitude of psychological illnesses and social problems (Fraser, 1997). Conversely, protection is something that reduces a risk factor's impact and protective factors are characteristics associated with a lower possibility of negative outcomes.

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Ashford, LeCroy and Lortie (2000) argue that risk and protective factors may be biological, psychological, social, environmental or spiritual in nature. Additionally, risk and protective factors are influences that may occur or take place at any level related to an individual's context (i.e., takes place within an individual, family, community or societal system), thus either jeopardizing potentially adaptive outcomes or facilitating positive adaption within a given system (Fraser, 1997). For example, within the individual system, risk and protective factors may involve cognitive abilities, personality attributes or physical health and general wellbeing. The family context may include single parenting, deviant siblings or role flexibility, and the community system may include support groups or gangsterism. These factors may also occur within the larger environmental or social systems which may include influences such as poverty, oppressive structures or social policies. Additionally, risk and protective factors are argued to be active and flexible within their own right and not predetermined characteristics specified for particular individuals, groups of people or systems (Ashford et al., 2000).

Traditionally, studies of resilience examined the concept solely in the context of chronic stressors (i.e., long-term, universal stressors such as poverty or discrimination; e.g., Werner, 2004). However, recent studies indicate that adversities facing adults are often considered to be acute stressors (e.g., exposure to a traumatic event, loss of a loved one; Bonanno & Diminich, 2012). This is relevant for the South African context where exposure to trauma is typically high (Cloitre et al., 2009). Therefore, for the purpose of this study, acute stressors will be the focus of the literature review. More specifically, exposure to a variety of potentially traumatic events (PTE). Exposure to trauma is considered as a potential risk factor as it is directly related to a negative outcome, that is, the development of PTS symptoms. In the following subsection, a broad discussion on trauma and PTS is presented. It is discussed within an international and South African context.

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2.4 Trauma Exposure and Posttraumatic Stress

Trauma may be defined as an event or a stressor that overpowers an individual's coping mechanisms and access to resources (Hamber & Lewis, 1997). According to the DSM-5, a traumatic event is defined as "exposure to actual or threatened death, serious injury, or sexual violence" (American Psychiatric Association [APA], 2013, p. 271). Unlike typical, everyday events, traumatic events are likely to result in a feeling of powerlessness due to the often dangerous circumstances or violent nature of the acts involved in these events. Furthermore, the rare occurrence of traumatic experiences renders them unusual to everyday life experiences (Hamber & Lewis, 1997). It is reported that most South Africans experience at least one traumatic event during their lifetime, with the majority reporting multiple traumas (Williams et al., 2007). In a recent study undertaken by McGowan and Kagee (2013) on a sample of South African university students, approximately 90% of the respondents (N = 1213) reported experiencing a traumatic event in their lifetime. It was established that the most commonly reported traumatic event was exposure to suicide and/or homicide. In an earlier study (also conducted on a sample of South African university students), 70.6% reported exposure to at least one or more traumatic events (Hoffmann, 2002). Compared to international statistics, from a sample of United States (US) university students, it was found that 84% experienced at least one traumatic event and more than one third experienced multiple traumatic events (Vrana & Lauterbach, 1994). In another international study undertaken by Elhai et al. (2012), they showed that 67% of the total student sample had experienced at least one traumatic event within their lifetime, therefore reflecting slightly lower levels of exposure to trauma compared to South Africa.

As previously mentioned, South African individuals with a trauma history seldom experience only a single traumatic event but are likely to have experienced or been exposed to multiple traumatic events (Cloitre et al., 2009; Fincham, Altes, Stein, & Seedat, 2009).

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This phenomenon is often referred to as continuous trauma, a new area in trauma research (Suliman et al., 2009). Importantly, earlier authors such as Straker (cited in Hamber & Lewis, 1997) argued that the DSM-5 classification of PTSD neglected to incorporate the potential effect of continuous trauma on an individual. It was further suggested that the disorder cannot be directly applied to the South African context due to the high levels of ongoing violence and long-term trauma. They therefore proposed the notion of continuous traumatic stress syndrome (Straker, cited in Hamber & Lewis, 1997). For the purpose of this study, the researcher maintains the DSM-5 (APA, 2013) definition of trauma as it is most appropriate for understanding and categorising traumatic event differences. However, instead of referring solely to PTSD, the researcher makes reference to the associated spectrum of symptomatology (i.e., PTS) in order to better consider trauma outcomes related to the South African context (i.e., continuous trauma).

In terms of the rates of trauma and prevalence of traumatic exposure, a global review undertaken by Atwoli et al. (2015) indicated that World Mental Health (WMH) surveys documented significant variances in the prevalence and distribution of exposure to traumatic events across the world. With regards to South Africa, compared to Europe and Japan who reported a lifetime traumatic event prevalence rate which ranged between 54% and 64%, the South African population reported a higher prevalence of 73.8% (Atwoli et al., 2015). It is argued that the variation in the rates and prevalence of traumatic events across the world appear to reflect historical, cultural, and political factors that vary across regions. That is, South Africa's apartheid history arguably contributed towards the higher rates of trauma exposure compared to Japan and Europe in that, coupled with increasing rates of unlawful assault in community spaces, the state-sanctioned discrimination, and political violence led to increased rates of exposure (Kaminer, Grimsrud, Myer, Stein, & Williams, 2008). Consistent

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with this notion, the largest proportion of all lifetime traumatic events in South Africa are physical violence and witnessing trauma occurring to another individual (Atwoli et al., 2015).

Exposure to trauma has been associated with the development of numerous psychopathological disorders and negative outcomes namely, but not limited to, PTSD (e.g., Atwoli et al., 2013), anxiety, (e.g., Freh, 2016), depression (e.g., Lehavot & Simpson, 2014), and aggression (e.g., LaMotte, Taft, Weatherill, Scott, & Eckhardt, 2014). However, unlike other mental disorders associated with trauma exposure, PTSD is a psychological disorder that is directly related to (i.e., causal relationship) and precipitated by exposure to an event that threatens an individual's life or which evokes an intense fear response (APA, 2013; Yehuda et al., 1998). According to DSM-5, the symptoms experienced in PTSD are characterised by PTS symptoms. These symptoms are divided into four overarching categories namely: intrusion symptoms (e.g., recurrent and involuntary distressing memories, dreams or recollections associated with the trauma); avoidant behaviour (e.g., efforts to avoid feelings, places, conversations or thoughts associated with the trauma); negative alterations in mood and cognitions (e.g., negative beliefs about oneself, negative emotional state); and symptoms of increased arousal and changes in responsiveness (e.g., irritability, insomnia, hypervigilance; APA, 2013). Research has shown that initially, the majority of individuals present with PTS symptoms following a traumatic event (which is referred to as 'acute stress'; APA, 2013). However, it is reported that only a proportion of individuals who are exposed to a traumatic event develop and sustain the PTS symptoms. This may lead to a diagnosis of PTSD if the symptoms do not subside (APA, 2013).

As previously mentioned, the majority of South Africa's general population is exposed to high levels of trauma (Atwoli et al., 2013). Therefore, it may be argued that the high incidences of trauma place South Africans at an increased risk for developing PTSD and associated symptoms. In their study, Atwoli et al. (2013) assessed the South African Stress

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and Health Study in order to determine the presence of PTSD amongst the general population. Findings of the study indicate a lifetime prevalence of PTSD to be 2.3% and a 12-month prevalence of 0.7%, while initial prevalence rates of PTSD after exposure to trauma was 3.5%. Compared to international studies, a global review undertaken by Atwoli et al. (2015) indicated that the lifetime prevalence of PTSD varied. Lifetime prevalence was found to be similar in South Africa (2.3%), Spain (2.2%), and Italy (2.4%) and lower in Japan (1.3%). Conversely, Northern Ireland reported the highest lifetime PTSD prevalence of 8.8%.

It is however noted that lifetime prevalence rates in the WMH surveys are lower than those found in previous studies due to methodological differences in obtaining a PTSD scores (Atwoli et al., 2015). In a study of Native American communities (Breslau, Peterson, Poisson, Schultz, & Lucia, 2009), two separate methods were utilised. Compared to using the 'single worst trauma' as the focus of the PTSD assessment, using questions asking about the 'three worst traumas' yielded a higher PTSD prevalence rate (i.e., 5.9 to 14.8% versus 8.9 to 19.5%, respectively). Similarly, in Atwoli et al.'s (2015) review, the provisional prevalence of PTSD using the 'worst event' method was 13.6%, while using the 'random event' method was 9.2%. Together, these rates conclude that focusing on the worst traumas likely overestimates the probability of PTSD associated with typical traumas. Therefore, cross-national comparisons of traumatic event exposure and PTSD rates should be done with caution when there are methodological shifts. Secondly, studies should increase the use of the 'random event' in order to generate more accurate population-level statistics on PTSD risk.

In summary, research has shown that initially, the majority of individuals present with PTS symptoms following a traumatic event. However, it is reported that only a proportion of individuals who are exposed to a traumatic event develop and sustain the PTS symptoms.

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This may lead to a diagnosis of PTSD if the symptoms do not subside (APA, 2013). Trauma research has often focused on the variations in the prevalence, types of trauma and differences in exposure, and their relationship with PTS in order to attempt to explain these differences. Atwoli et al. (2013) argue that the impact of experiencing a traumatic event is likely to be more distressing for individuals with a history of trauma exposure (i.e., continuous trauma), and these individuals often experience greater psychiatric symptoms (Suliman et al., 2009). Recent literature pertaining to this area has suggested that exposure to continuous trauma in high-trauma settings (e.g., war zones or police services; Kopel & Friedman, 1997) is associated with elevated levels of PTSD (Suliman et al., 2009). On the other hand, in some cases, research has shown that participants with multiple exposures to traumatic events had disproportionately poorer mental health, not due to the cumulative number of traumatic events experienced, but because of the severity of the events (i.e., different types of exposure to traumatic events; e.g., witnessing versus learning about it). This is supported by Schilling, Aseltine and Gore (2008) who argue that the severity of adversity or exposure to trauma contributes to poor mental health and the development of PTS.

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In identifying risks associated with negative outcomes (i.e., PTS) when there is exposure to trauma, the variations in the types of events and types of exposure, and the incidences of subsequent psychopathologic development, is usually considered. For the purpose of this study, the association between trauma and PTS will be explored in greater detail in order to highlight the particular risks associated with differences in exposure to trauma. Therefore, in the following subsections, specific attention is given to the development of PTS symptoms in relation to differences in 1) types of events; 2) levels of exposure; and 3) the cumulative effect of trauma.

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2.4.1 Types of traumatic events and posttraumatic stress. In keeping with the DSM-5's (APA, 2013) definition of what constitutes a traumatic event, numerous studies explored the different types of traumatic events within an international context (e.g., Bernat, Ronfeldt, Calhoun, & Arias, 1998; Elhai et al., 2012; Moser, Hajcak, Simons, & Foa, 2007), as well as the South African context (e.g., Hoffmann, 2002; Mc Gowan & Kagee, 2013). A recent study on the epidemiology of worldwide traumatic event exposure indicated that the most frequently occurring traumatic event was the death of a family member or friend, followed by serious accidents, natural disasters, sexual assault, witness to death or assault, interpersonal violence, and violent crime, respectively (Benjet et al., 2015). Similar findings were indicated in an earlier study undertaken by Kelly, Coenen and Johnston (1995) on university students. They found that the most frequently occurring traumatic event among university students was the death of a significant other, followed by interpersonal violence, sexual assault, suicide, and physical assault (Kelly et al., 1995). Similarly, in both Mc Gowan and Kagee (2013) and Hoffmann's (2002) studies on South African university students, the most commonly reported traumatic event was the homicide or suicide of a loved one or close friend. Similarly, Atwoli et al. (2013) found that the most common traumatic events experienced within the general South African population were witnessing a violent event and the unexpected death of a loved one. The least frequently occurring events reported were xenophobic attacks and forced sexual activity. The latter is likely a reflection of the general population from which high levels of sexual assaults go unreported (Mc Gowan & Kagee, 2013).

Research conducted in general population-based samples consistently indicated a higher prevalence of PTSD from individual's reporting interpersonal versus non-interpersonal traumas as their most severe traumatic event (Breslau, Davis, Andreski, & Peterson, 1991; Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993; Sartor et al., 2011). A study

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undertaken by Sartor et al. (2012) did not find any differences in risk for developing PTSD between worst reported interpersonal and non-interpersonal traumatic events. The differences in findings are likely related to the saturation of trauma in Sartor et al.'s (2012) study. Majority of the women, who had reported non-interpersonal trauma as their worst experience, had also experienced an interpersonal trauma. Therefore, it may be argued that the severity and emotional impact of the non-interpersonal traumas were potentially higher due to having previously experienced an interpersonal traumatic event. Other factors that may contribute toward an individual's reaction to a traumatic event include proximity, having experienced earlier traumas, the appraisal of the trauma, intensity (severity), and the duration of the event (Elhai et al., 2012; May & Wisco, 2016). However, identifying and exploring all the trauma-related relationships are beyond the scope of this study. Instead, this study will focus on the varying levels of exposure to trauma and literature pertaining to their relationship toward the development of PTS symptoms.

2.4.2 Types of exposure to traumatic events and posttraumatic stress. The aforementioned types of traumatic events (e.g., physical assault) may be experienced in one of several ways. The DSM-5 stipulates that an individual may experience or be exposed to a traumatic event by one of the following ways, namely: 1) personally experiencing the traumatic event (e.g., being assaulted or being involved in a car accident); 2) witnessing in person, the event as it occurred to another (e.g., observing someone being stabbed); 3) learning that the traumatic event occurred to a family member or close friend (e.g., learning about a stabbing or violent death through secondary narrative); or 4) experiencing repeated or extreme exposure to aversive details of the traumatic event that is work-related (e.g., social workers repeatedly exposed to details of interpartner violence or child abuse; APA, 2013).

Additionally, as outlined in the DSM-5, these four levels of exposure may be separated into two distinct categories: direct and indirect exposure (APA, 2013), where direct

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exposure comprises of the first two levels of exposure and indirect exposure is comprised of the latter two. This is supported by literature where it is often argued that direct exposure occurs when an individual either experiences a trauma first-hand or witnesses a trauma as it occurs to others (May & Wisco, 2016). Alternatively, indirect exposure occurs when individuals do not directly experience or witness a trauma, instead, these individuals are exposed to the trauma through narratives or other sources. This type of exposure is therefore second-hand in nature and is commonly referred to as 'secondary trauma' or 'vicarious trauma' (May & Wisco, 2016; Zimering, Gulliver, Knight, Munroe, & Keane, 2006). Both exposure types to at least one traumatic event is known to lead to PTSD (Lopes et al., 2015). However, the former type of exposure has largely been the focus of PTSD research (May & Wisco, 2016).

Where direct compared to indirect trauma exposure has been researched within the international context, the samples have mainly consisted of disaster relief workers (e.g., Eriksson, Kemp, Gorsuch, Hoke, & Foy, 2001; Zimering et al., 2006), medical personnel (e.g., Koren, Caspi, Leiba, Bloch, Vexler, & Klein, 2009), children (e.g., Bhushan & Sathya Kumar, 2009; Yahav, 2011), and adults (e.g., Lopes et al., 2015; Suvak, Maguen, Litz, Silver, & Holman, 2008). Within the South African context, fewer studies were identified. Of those, direct and indirect exposure to trauma have been studied on a sample of children (e.g., Barbarin et al., 2001), adolescents (e.g., Kaminer, du Plessis, Hardy, & Benjamin, 2013), and trauma workers (MacRitchie & Leibowitz, 2010).

In a study assessing direct and indirect exposure to violence among adolescents living in Cape Town (N = 617), 40.1% had been directly assaulted or threatened in the community, and 58.6% had been directly victimized at home. 98.9% and 76.9% had witnessed community violence and domestic violence, respectively (Kaminer et al., 2013). Barbarin et al.'s (2001) study on six-year-old children (N = 625) focused on the direct (e.g.,

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victimization) and indirect (e.g., community danger) trauma and its relationship with their psychosocial adjustment (i.e., behavioural, emotional, social, and academic). Additionally, they studied the moderating effect of the coping resources (i.e., spirituality, family support, child resilience, and maternal coping) available to the child. Findings from this study suggested that exposure to indirect violence produces effects parallel to those observed when the violence involves direct exposure (Barbarin et al., 2001). It was also found that the effects of exposure to violence on psychological and academic functioning were found to be independent of gender and socioeconomic status (SES). That is, both males and females, as well as the economically advantaged and disadvantaged, displayed similar difficulties in the face of violence. However, the study did not focus on the effect the aforementioned types of trauma and coping strategies had on the development of psychopathology.

A recent systematic review undertaken by May and Wisco (2016) explored the difference between direct and indirect trauma exposure and the risk for PTSD associated with both exposure types. Results from this study indicated that the chances of developing PTSD from indirect exposure are lower than that from direct exposure. However, there is a possibility of developing the disorder from both exposure types. Similarly, in another study undertaken on PTSD in disaster relief workers (N = 109) following direct and indirect trauma exposure to the September 11th terrorist attacks showed that rates of PTSD from direct and indirect exposure to traumatic stressors were 6.4% and 4.6%, respectively (Zimering et al., 2006). In a sample of pregnant women, a study undertaken by Kulkarni, Graham-Bermann, Rauch and Seng (2010) found that direct exposure (i.e., experienced childhood abuse), and combined direct exposure and indirect exposure (i.e., witnessing intimate partner violence) to traumatic events significantly correlated to current and life-long PTSD diagnoses, whereas indirect exposure to traumatic events did not. Similar findings were identified in a study examining a sample of Korean children (Kim et al., 2009). The study found that the

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prevalence of severe PTS symptoms was significantly higher in the direct-exposure group (36.6%) than in the indirect-exposure group (12.7%).

2.4.3 The cumulative effect of trauma. Direct exposure to at least one traumatic event has been the focus of a great deal of PTSD research (e.g., APA, 2013). Although traumatic events were once considered "outside the range of usual human experience" (APA, 1987, p. 250), epidemiological research has shown that trauma exposure is much more common than previously believed (Kessler, 2000). As previously mentioned, individuals are more likely to have a history of exposure to several traumatic events rather than a single trauma (Williams et al., 2007). Research on cumulative trauma has shown that multiple traumas confer a greater PTSD risk than exposure to a single trauma (May & Wisco, 2016). However, the definition of cumulative trauma is inconsistent in the literature making it difficult to draw comparisons across studies.

May and Wisco (2016) highlighted three distinct definitions that have been used in cumulative trauma research. Firstly, cumulative trauma has been defined as the effect number of distinct trauma types experienced throughout one's lifetime (Martin, Cromer, DePrince, & Freyd, 2013). A second definition is the number of times the same trauma type has been experienced. For example, child abuse, in which multiple incidences of abuse may occur over a period of time. This definition is often termed 'polyvictimization' and generally refers to physical or sexual trauma (Cloitre et al., 2009). The last definition of cumulative trauma is considered to be more inclusive in that the definition is a lifetime's total traumatic exposure. That is, the total number of traumatic events that have occurred across all trauma types (May & Wisco, 2016).

Across these different definitions, research has generally indicated that higher cumulative trauma exposure is associated with greater PTSD risk (e.g., Breslau, Chilcoat, Kessler, & Davis, 1999; Williams et al., 2007; Wisco et al., 2014). For example, it was found

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that polyvictimization in the past year was more predictive of trauma symptoms than other known risk factors in a nationally representative sample of youth (Finkelhor, Ormrod, & Turner, 2007). In a comprehensive, cross-national, population-based survey, compared to exposure to one to three traumatic events, exposure to four or more traumatic events was associated with higher probability of PTSD and greater symptom severity, comorbidity, and functional impairment. Thus, offering strong support for cumulative effects of trauma (Karam et al., 2014). This is also seen in South African research, where findings also support a cumulative effect of trauma exposure. That is, individuals with the most traumas (six or more) appear at 5 times greater risk of high distress (Williams et al., 2007).

In summary, there are multiple factors and processes that influence the relationship between exposure to traumatic events and the development of posttraumatic stress (PTS) symptoms that, in turn, may determine the likelihood of an individual developing PTSD. South Africa has been identified as a high trauma exposure society with the majority of individuals reporting multiple exposure to trauma (Williams et al., 2007). In terms of the role exposure to trauma plays toward the development of PTS, the literature review of this study focused on three main groups of interactions namely, multiple exposure to trauma; types of traumatic events; and direct versus indirect exposure. The latter group showed the greatest area pertaining to a lack of research within the field. That is, previous research on PTSD has examined the amount, or intensity, of exposure an individual has experienced and how this relates to the development of PTS symptoms (Galea et al., 2002; Hughes et al., 2011; Sprang, 1999; Weisaeth, 1989). However, information on the type of exposure (i.e., direct or indirect) may provide additional utility in determining PTSD risk following trauma exposure. Therefore, with regards to the South African context, the importance in distinguishing between single versus multiple traumas may be less important. Instead, it may be more helpful in identifying differences regarding the types of trauma and types of exposure, and

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the relative effect in contexts of continuous trauma. With regards to literature pertaining to trauma and PTS, the majority of trauma-related research has focused on the different types of traumatic events (e.g., assaults, accidents, sudden deaths), and the relative effect these traumas have on individual outcomes (e.g., Atwoli et al., 2013; McGowan & Kagee, 2013). However, although the research on individuals exposed to traumatic events has been enlightening, literature pertaining to the effect of direct and indirect exposure to trauma is small, especially in the context of continuous trauma. Additionally, there is a scarcity of research based on diverse samples that compare young adult survivors of different types of exposure to traumatic events (Kulkarni et al., 2010). Lastly, research has shown that exposure to trauma does not necessarily equate to the development of PTS. Rather, other factors may account for an individual being predisposed to developing and sustaining PTS symptoms. The above highlights the need to explore these additional factors within diverse contexts such as South Africa.

In saying this, it is not only the variation in the differences in exposure to trauma but also the differences in systemic and/or contextual factors that play a role in negative outcomes when trauma is present. This is especially true for low-income countries and post-conflict contexts where access to resources and trained mental health professionals is typically low (Atwoli et al., 2015). In line with this idea, demographic factors that influence risk and protection with regards to exposure to trauma and subsequent PTS symptom development should be considered in order to identify possible 'at-risk' groups and better understand associated factors related to the development of resilience.

2.5 Risk and Protective Factors that Mediate Trauma

As previously mentioned, the variations in the negative outcomes when exposed to adversity do not solely rely on the differences in the numerous trauma-related risk factors. Rather, risk and protective factors associated with the context in which trauma takes place is

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of great importance in understanding these differences (Ungar, 2014). With a growing interest of resilience and trauma exposure in the mental healthcare system, there is a need for a fundamental way to understand the complex, multifaceted interactions within a diverse context such as South Africa that predict adaptive coping when exposed to high levels of adversity (Ungar, 2014; Visser, 2007). Thus, demographic and systemic differences have been identified as a crucial area in trauma, risk and resilience research due to the varying levels of exposure and responses to trauma within given contexts (Mills et al., 2011). It is argued that risk and protective factors may be biological, psychological, social, environmental or spiritual in nature (Ungar, 2014).

For example, in an Australian survey on Mental Health and Wellbeing, Mills et al. (2011) found that there were no gender differences with regards to the likelihood of trauma exposure. However, there were significant differences in the types of traumatic events each gender was likely to experience. Women are significantly more likely to experience sexual violence than men whereas the most common traumatic event experienced by men is exposure to physical violence (Slopen, Williams, Fitzmaurice, & Gilman, 2011; Vrana & Lauterbach, 1994), which remains consistent in a student sample (Bernat et al., 1998). Women were also more likely to report these events as the cause for their PTS symptoms (Jayawickreme, Yasinski, Williams, & Foa, 2011). In one study, results showed that women are 75% more likely to develop PTSD following a traumatic event (Jayawickreme et al., 2011). This is supported by other studies which found that compared to men, women have a higher risk for developing PTSD (Grubaugh, Zinzow, Paul, Egede, & Frueh, 2011; Parto, Evans, & Zonderman, 2011) and major depressive disorder (Slopen et al., 2011) following exposure to a traumatic event. It is argued that the gender difference is not necessarily accounted for by the increased risk of exposure to trauma or the uneven distribution of specific event types associated with an increased risk for PTSD. Rather, gender difference

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may be traced to the occurrence of PTSD following exposure itself, especially when the traumatic events involve assaultive violence (Breslau & Anthony, 2007). The above suggests that women may be more susceptible than men to developing PTSD following a traumatic event.

However, gender based theories on resilience suggest that, irrespective of culture, females tend to demonstrate more resilience after exposure to a traumatic event (Sun & Stewart, 2007). Hoffmann (2002) ascribed this phenomenon to gender differences in stressor appraisal. That is, men and women adopted different coping strategies in the context of traumatic events. This is consistent with other findings (e.g., Nolen-Hoeksema & Aldao, 2011; Padmanabhanunni, Campbell, & Pretorius, 2017). In addition to types of practical coping strategies and stressor appraisal, men and women may manifest emotional pain in different ways. Therefore, gender differences in the development of mental health issues (e.g., PTSD) may be additionally influenced by the reaction to trauma by men and women. Nolen-Hoeksema and Aldao (2011) examined gender differences in emotion regulation techniques (e.g., social support, rumination, reappraisal, suppression, acceptance and problem-solving) and the relationships between these strategies and depressive symptoms following a traumatic event. It was reported that, unlike men, women were more likely to use a wider variety of adaptive and maladaptive emotion regulation strategies (Nolen-Hoeksema & Aldao, 2011). This is supported by a recent South African study on gendered roles of appraisals of safety in psychological outcomes in relation to trauma (Padmanabhanunni et al., 2017).

Additionally, these factor influences may occur or take place on an individual, family, community or societal system's level related to an individual's context (Fraser, 1997). From an ecological systems perspective, discussed in more detail later in the literature review, it is argued that these aforementioned factors of an individual's environment may promote and

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protect against the negative impact of exposure to traumatic events, thus, contributing toward the development of resilience (Ungar, 2014). For example, it has been argued that the greatest burden of trauma exposure falls upon South Africans who have historically been the victims of political oppression, many of whom still live in conditions of disempowerment and poverty (Kaminer & Eagle, 2010). However, the role of race as a risk (or protective) factor for trauma in South Africa remains unclear (Otwombe et al., 2015). It is necessary to problematize race in that racial classification has been strongly objected and contested due to the history of oppression and segregation stemming from the Apartheid regime. Therefore, racial classification has been placed in quotation marks when referring to race within the South African context. In a study undertaken by Roberts, Gilman, Breslau, Breslau and Koenen (2010) on race differences in exposure to traumatic events and the development of PTSD in the United States (US), the lifetime prevalence of PTSD was highest among Blacks (8.7%), intermediate among Hispanics and Whites (7% & 7.4%, respectively) and lowest among Asians (4%). Among those exposed to trauma, compared with White individuals, PTSD risk was slightly higher among Blacks and lower among Asians. The differences in risk for trauma varied by type of event with White's more likely to have experienced any trauma, to learn of an unexpected death and to learn of a trauma to someone close to them. Whereas, Blacks and Hispanics had a higher risk of child maltreatment and witnessing domestic violence. Contradictory to Norris' (1992) findings which indicated a higher prevalence of PTS among Whites compared to other racial groups, a South African study amongst university students (N = 1337) indicated that the significant racial predictors of the severity of PTS symptoms were 'Coloured' and 'Black' race (McGowan & Kagee, 2013). With regards to the relationship between race and frequency of traumatic event exposure, findings from William et al.'s (2007) study on trauma exposure in South Africa indicated higher levels of PTS and exposure to trauma among 'Coloured' and 'Black' South Africans.

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However, international statistics cannot directly be compared to the South African society due to its apartheid history and the historical difference in ethnic-related oppression. Where apartheid laws once segregated ethnic groups, such communities still live within their racial groups in South Africa (Otwombe et al., 2015). It may be argued that in South Africa, race is important due to the unequal access to various opportunities (e.g., healthcare and education) resulting from the racial structuring of communities. In turn, these lack of opportunities influence the type and severity of exposure to trauma, and restrict access to health services in the event of physical injury or the development of a psychological illness (Otwombe et al., 2015). Therefore, consideration of the relative influence socioeconomic opportunities and related-structures (i.e., SES) may have on individual resilience, may be more appropriate given the South African context.

Although violence occurs in all socioeconomic groups, it is found to be more prevalent in lower socioeconomic settings (Otwombe et al., 2015). This is supported by recent community studies that show that trauma exposure is higher in low-income countries compared with higher-income countries (Atwoli et al., 2015). A large portion of research on SES and psychological illness has shown that elevated levels of distress have been observed among individuals in low SES groups (e.g., Laffaye, Kennedy, & Stein, 2003; Turner & Lloyd, 1995). Laffaye et al.'s (2003) study investigated the relationship between SES and education level with interpersonal violence exposure in women. Results of the study indicate that SES and education level does not significantly predict the development of PTSD following exposure to interpersonal violence. However, one important psychological factor that has been related to both poor physical and mental health and lower SES, is stress. It is argued that low SES individuals are more often exposed to negative, unpredictable and stressful life events (Brady & Matthews, 2002; Turner & Lloyd, 1995) and that particular types of negative events such as greater exposure to discrimination and violence are more

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likely to characterise the life experience of individuals from low SES environments (Clark, Anderson, Clark, & Williams, 1999; Selner-O'Hagan, Kindlon, Buka, Raudenbush, & Earls, 1998). Furthermore, the prevalence rates of PTSD appear to be similar across counties. However, higher rates are found in post-conflict contexts (Atwoli et al., 2015). With regards to variations in risk, trauma and PTSD risk factors are dispersed differently suggesting a need to identify and understand the various factors associated with high trauma exposure in post conflict and low income countries where access to resources and trained professionals are typically low (Atwoli et al., 2015). This is supported by Schwartz, Bradley, Sexton, Sherry and Ressler's (2005) study which indicated higher rates of undiagnosed PTSD among low SES and African American groups. They found a PTSD incidence rate of 44% in which the majority of cases were undiagnosed. In line with this, it was suggested that race alone does not explain the elevated rates in this population (Alim, Charney, & Mellman, 2006). Rather, more research is needed on the interaction of PTSD with lower SES groups as most previous studies of the relationship between race and PTSD have utilized African American, low-income participants making it difficult to determine if elevated rates were due to race or poverty. Therefore, very little is known about SES variations in chronic exposure to trauma. Consequently, research that allows for the evaluation on the extent to which SES mediates the outcome (e.g., PTS) of exposure to trauma is limited. This limitation has crucial implications in our understanding regarding SES differences in coping strategies or personal vulnerabilities as SES differences have been controlled, and are usually based on the magnitude of observable differences in psychological well-being when exposed to trauma and not empirical evidence.

In summary, risk and protective factors may be biological, psychological, social, environmental or spiritual in nature (Ungar, 2014). As can be seen in the above subsection, even though literature discusses particular factors as either 'risk' or 'protective', the

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distinction is not clear. That is, in addition to the notion of particular risk and protective factors being more prominent within particular contexts or settings, these factors are not static but may be considered as fluid as they prove to vary in influence given differing contexts and changing circumstances (Ungar, 2014). Rather, factors may alternate between being 'risk' or 'protective' depending on their relationship within or between these systems. Gender is one example where literature shows that females tend to exhibit higher levels of resilience following trauma, however, negative outcomes (e.g., PTSD) are also higher. Therefore, gender is neither explicitly a protective or risk factor. Rather, the risks associated with gender are likely related to, or better explained by, the context. In terms of the South African context, due to the majority of South Africans having experienced multiple traumatic events, it may be argued that trauma is not an extraordinary or abnormal event in our society. This raised important questions regarding the possible 'normalization' of trauma. That is, do individuals who are living in conditions of chronic traumatisation eventually become desensitised and find functional ways to adapt or cope with trauma and thus contribute toward the development of resilience? This leaves us with further questions regarding the relative influence the above risk and protective factors have on the development of resilience in relation to differing contexts and exposure to trauma. It additionally reiterates the idea that various factors may alternate between being 'risk' or 'protective' depending on their relationship within or between contexts and various systems (Ungar, 2014). Research has started tackling some of these questions, however, there is much that remains to be understood about how South Africans adapt to conditions of chronic adversity and multiple exposure to potentially traumatic events, as well as how ongoing conditions related to historical oppression contribute toward the impact of trauma exposure across diverse communities (Kaminer & Eagle, 2010). Therefore, the following subsection will attempt to explore this interaction using an ecological systems perspective.

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2.6 Theoretical Framework: An Ecological-Systems Perspective

As shown in this literature review, the majority of South Africa's general population is exposed to high levels of trauma with the majority of South Africans reporting multiple traumas (Atwoli et al, 2013; Williams et al., 2007). However, lifetime PTSD prevalence rates appear to be much lower and vary between contexts despite similar trauma exposure (Atwoli et al., 2015). This leads to consideration of the multiple factors and processes that may influence the relationship between exposure to traumatic events and the development of PTS symptoms. An ecological systems theory is adopted to identify, understand and conceptualise numerous factors within an individual's context which may contribute toward the development of resilience and, in turn, contribute toward the variation in the levels of PTS following a traumatic event.

Resilience research originates from the field of study of developmental psychology and psychiatry with an emphasis on individual factors rather than a systemic viewpoint or ecological conceptualisation (Waller, 2001). However, with a growing interest of resilience in the mental healthcare system, there is a need for a fundamental way to understand the complex, multifaceted interactions within a diverse context such as South Africa that predict adaptive coping when exposed to high levels of adversity (Ungar, 2014; Visser, 2007).

Resilience research in young adults is growing to explain several levels of perspectives and analysis consistent with an integrated system model (e.g., Cicchetti, 2010; Sapienza & Masten, 2011). Originally a risk factor model, the systems model developed by Bronfenbrenner (1977) attempts to conceptualise the individual within their given context and explain the interaction between their unique systems (e.g., family relations, personal characteristics and environmental factors). In a study undertaken by Sippel et al. (2015), it is argued that social support enhances resilience in trauma-exposed individuals. Their study included the argument that adaption to adversity requires the functioning of multiple

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interacting systems within and around the individual. Therefore, although numerous factors have been associated with resilience (e.g., demographic, biological, psychosocial), a single factor only accounts for a small portion of the variance (Southwick et al., as cited in Sippel et al., 2015).

Additionally, they argue that there is a bidirectional relationship between systems-level resilience and individual resilience. This bidirectional relationship is known in and forms the basis of an ecological and ecosystemic perspective where the individual-context link is transactional in nature (Harvey, 2007), and is based on the principle of reciprocity and feedback between these systems (Black & Krishnakumar, 1998). That is, individuals influence and are influenced by their multiple interacting systems, contributing toward (or inhibiting) the development of resilience. This is in line with Bronfenbrenner's (1977 understanding. The basis of Bronfenbrenner's systems theory is that an individual's development is affected by their social relationships and the world around them. He thus divided an individual's context into different systems, creating a model in which one can examine and understand the various possible environmental influences. According to this perspective, the system closest to the individual (namely, the microsystem which includes family, friends, and caregivers) is the most influential as direct contact with the individual occurs (Bronfenbrenner, 1977).

In summary, the ecological systems theory argues that individuals who are perceived to develop within their social and environmental contexts are not passive recipients of contextual changes but are rather active agents, capable of influencing and negotiating with contextual influences (Harvey, 2007). Therefore, the interactions between the individual and their social context result in the development of resilience. That is, resilience comprises of qualities that are shaped, nurtured and activated by a number of individual-environmental interactions. Resilience is therefore not only a result of biology or a predisposition to inherent

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traits and personal characteristics (Hjemdal et al., 2006), but may rather be influenced by contextual changes. In turn, it may be argued that by introducing supportive factors and protective influences into any part of an individual's system (e.g., family relationships, personal qualities, social policies or educational programmes), may contribute toward the development of resilience and the ability to withstand adversity. Thus, creating a ripple effect across systems and likely influencing others.

The theory's application demonstrates the usefulness of a systemic approach to understand resilience within diverse contexts such as the South African population (Ungar, 2014). Therefore, in line with this study's aims, an ecosystemic perspective is adopted to identify, explore and discuss the possible interactions that take place between an individual and their given context which may contribute toward the development of resilience. Additionally, by conceptualising resilience as multifaceted and developing from systemic interactions, the theory will be used to discuss the results of this study. That is, it will be used to understand the multidirectional interplay between individuals and contexts that include multiple trauma, and thus, possibly explaining the variations in PTS symptoms.

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CHAPTER 3

METHODOLOGY

This chapter outlines the methodology and procedure used for this study in order to answer the aforementioned research questions delineated in Chapter one. The chapter presents the research design as well as the research context. This is followed by a description the sampling strategy used in this study. Subsequently, a detailed description of the data collection procedure, instruments used in this study, as well as the data analysis is presented. Finally, the ethical considerations are noted.

3.1 Research Design

The present study used a quantitative cross-sectional research design as data were collected at one point in time from the sample using survey questionnaires (Bless, Higson-Smith, & Sithole, 2006). An advantage of the cross-sectional approach is that it allows for a picture of the occurrence at a particular point in time. However, the disadvantage may be that it does not permit changes to be observed over time, as would be demonstrated in longitudinal research (Bless et al., 2006). Data were collected by means of a survey comprising of four self-administered questionnaires which were administered in English, the primary language of instruction at the University of the Western Cape (UWC).

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3.2 Research Context

The research was conducted at UWC situated in Bellville, South Africa. There are currently approximately 15226 students enrolled at UWC (Govinder, Zondo, & Makgoba, 2013). The demographic profile of the university suggest that majority of the students come from low-middle income families, and are racially classified as Coloured (46.5%), followed by Black (38.4%), Indian (7.5%), and White (4.3%), the remainder is unspecified (Govinder, et al., 2013). These statistics are in line with the sample collected for this study (see Table 4.2). A vast majority of students at UWC come from historically disadvantaged backgrounds where there is a greater risk of exposure to potentially traumatic events (PTEs). In addition to the lack of adequate resources within disadvantaged communities, as a group, they share similar unfavourable circumstances and are, thus, at an increased risk of developing PTSD and other trauma-related psychopathology.

3.3 Sampling Strategy and Participants

The participants in the study consisted of year one to four Psychology students at the University of the Western Cape. The sample was chosen on the basis of the UWC population being more representative of the broader South African context in terms of their racial and historical profile when compared to other universities. A non-probability, convenience sampling technique was utilized. This sampling method was used to collect data based on convenience and availability of the sample (Bless et al., 2006). Convenience sampling required gaining access to first, second, third and honours year Psychology classes. Participation in the study was voluntary as those students who were available and interested completed the survey. The overall sample of the study consisted of 158 students. The demographic characteristics of the study are displayed in Table 4.2 (Chapter four).

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3.4 Procedure for Data Collection

Following ethical clearance from the Ethics Committee of the University of the Western Cape, the coordinators of the year one to four programmes were approached to receive access to students. Data were collected in two separate academic years: during the first round in 2016, 84 surveys were completed. In 2017, 74 surveys were completed. This was done as the sample size was considered to be too small for analysis and data could not be collected until 2017 as the 2016 academic year had ended. However, the same procedure was followed: with the requisite permission from the lecturers, questionnaires were handed out to students in class and collected after completion. The data were collected at the end of the lectures in order to avoid disruption of the lesson schedule. Prior to the distribution of the questionnaires, the researcher was introduced by the lecturer who then provided information regarding the rationale and aim of the study, the types of questionnaires provided as well as the ethical considerations (with regards to individual anonymity and confidentiality of the information provided). Students were told the importance of signing the consent form attached to the front of the questionnaire and were notified that their participation in the study was entirely voluntary and they reserved the right to either not participate or withdraw at any time. With regards to difficulties experienced in the recruitment process, based on the circumstance that some students may have needed to attend a following class, participant attrition may have occurred or students may have rushed in order to finish the questionnaire as quickly as possible. Additionally, in light of only 158 questionnaires being completed from a total population of approximately 3000 psychology students, it may be argued that few students were interested in completing the survey. This may have partially been due to having had already completed other student- and academic-related surveys throughout the week. Lastly, albeit not too time-consuming (approximately 15 minutes to complete), there was no form of incentive following the completion of the questionnaires. These may be

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possible limitations of the data collection procedure. After the questionnaires were completed they were put into boxes and stored in a locked drawer at the Department of Psychology in order to ensure confidentiality and safe-keeping. After completion and collection of the questionnaires, the data were entered into a secured computer-based system (i.e., Excel spreadsheet) prior to analysis.

3.5 Instruments

This section explores the various questionnaires and scales used in this research study in order to measure the three groups of independent variables: sociodemographic factors, exposure to trauma, and resilience; and a single dependent variable: level of posttraumatic stress (PTS) symptoms. Questionnaires are a typical and structured method used to collect data from respondents (Bless at al., 2006), which was considered to be the most appropriate approach for the current study as it permitted a larger data sample to be collected. Students were asked to voluntarily complete four self-report questionnaires namely, 1) a biographical questionnaire (Appendix C); 2) the Life Events Checklist for DSM-5 (LEC-5; Appendix D); 3) the Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5; Appendix E); and 4) the Resilience Scale for Adults (RSA; Appendix F). The biographical questionnaire, the LEC-5, and the RSA were used to measure the independent variables whereas the PCL-5 was used to measure the dependent variable. The aforementioned questionnaires will be discussed in further detail in the following subsections.

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3.5.1 A Biographical questionnaire. The biographical questionnaire used for the study was designed by the researcher. This questionnaire measured the demographics of the sample by asking questions pertaining to the individual's age, race, religion, language, income level, gender, occupation, relationship status, dependents and year of study. In line with the aims of this study, the participants' income level and gender were used as independent variables for analysis. Income level was used as a proxy for socioeconomic

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status (SES) as income and/or expenditure are the most commonly used proxies for measuring SES (e.g., poverty versus affluence; Africa, 2018).

3.5.2 The Life Events Checklist for DSM-5 (LEC-5). This subsection will explore the LEC-5 as a measure of "exposure to trauma". Firstly, a discussion of the psychometric properties of the measure will be presented. This is followed by its usage for this study in order to create two independent variables related to differing 'types' of exposure to trauma. Lastly, a brief explanation of its reliability and validity statistics will be presented.

The original version of the LEC was developed at the National Center for PTSD concurrently with the Clinician Administered PTSD Scale (CAPS) to assess exposure to potentially traumatic events (PTEs) according to the DSM's classification and guidelines (Gray, Litz, Hsu, & Lombardo, 2004). The LEC-5 is an updated version which includes additional items according to the changes made in the DSM-5 (i.e., Item 15 "Sudden, unexpected death of someone close to you" was changed to "Sudden accidental death" and the addition of the response category "Part of my job" was added). The LEC-5 may be presented in three formats: 1) Standard self-report: to establish if an event occurred; 2) Extended self-report: to establish worst event if more than one event occurred; and 3) Interview: to establish if Criterion A is met. This study utilised the second format, the extended self-report measure. The LEC-5 extended version is a 2-part, self-report measure. Part 1 is designed to screen for PTEs in an individual's lifetime and Part 2 evaluates the 'worst event' nominated by the participant (Weathers et al., 2013). Expanding on this, Part 1 of the LEC-5 assesses four types of exposure on a 6-point nominal scale (i.e., happened to me, witnessed it, learned about it, part of my job, not sure, doesn't apply) to 16 events known to potentially result in the development of PTSD. Additionally, it includes an extra item assessing 'any other' PTEs not captured in the first 16 items. Part 2 of the LEC-5 is used to identify the 'worst event' experienced out of the reported events in Part 1 and asks questions

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pertaining to that specific event (e.g., “how long ago did it happen?”; “how did you experience it?”; “was someone’s life in danger?”). The PCL-5 is typically used as a qualitative screening measure but may be used by both researchers and clinicians (Weathers et al., 2013). There is no formal scoring protocol or interpretation other than identifying whether a person has experienced one or more of the events listed. That is, the participants indicate varying levels of exposure to each type of PTE and participants may endorse multiple levels of exposure to the same trauma type. Additionally, Gray et al. (2004) highlight the instruments use on particular research questions for which comparisons of experiencing events at differing levels of intensity (e.g., witnessing versus learning about) may be of interest. It may also be used when researchers are interested in only the most severe type of exposure or to obtain information about multiple types of exposure to one or more events (Gray et al., 2004) as it allows researchers to access these types of data.

For the purpose of this study, the LEC-5 was used to measure different levels of exposure to trauma (i.e., happened to me, witnessed it, learned about it and part of my job) in order to report on the cumulative effect of experiencing multiple PTEs at differing levels of severity. Participants’ responses on the LEC-5 were scored based which of the 17 items (types of events) they endorsed across the four levels of exposure. That is, an individual could achieve a total score ranging from 0 to 17 on ‘happened to me’, witnessed it’, ‘learned about it’, and ‘part of my job’, respectively (i.e., cumulative scores for each of the four levels of exposure). Next, the aforementioned four-levels of exposure were dichotomized into ‘direct’ and ‘indirect’ exposure categories based on recommendations made in literature. That is, direct exposure is defined as any first-hand involvement and indirect exposure as a second-hand interaction (May & Wisco, 2016; Zimering et al., 2006). Therefore, with regards to this study, direct exposure is the cumulated score of “happened to me” and the “witnessed it”, whereas indirect exposure is the cumulated score of “learned about it” and

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"part of my job". Thus, producing the two trauma-related variables, each with scores ranging from a possible 0 to 34. In summary, the LEC-5 was used to produce two trauma-related variables: direct and indirect exposure to trauma.

Regarding reliability indices, it is argued by several authors that due to trauma exposure being a multidimensional construct, internal consistency is not a property of these types of measures. Instead, temporal stability is used to determine the reliability of the instruments (Bae, Kim, Koh, Kim, & Park, 2008; Gray et al., 2004) such as the LEC-5. Apart from a Polish adaptation of the LEC-5 (Rzeszutek, Lis-Turlejska, Palich, & Szumiał, 2017), the psychometric properties of the measure are not currently available (Weathers et al., 2013). The Polish version, conducted on 172 university students in Warsaw, showed high Kappa coefficients and thus good temporal stability. Given the minimal changes and revisions from the original version of the LEC, few psychometric differences are expected (Weathers et al., 2013) and therefore a brief discussion regarding the LEC psychometric properties are presented, in comparison to results obtained from the Polish adaption (Rzeszutek et al., 2017). In a United States (US) study on psychology undergraduate university students (N = 108) undertaken by Gray et al. (2004), the reliability indices for the LEC were computed for dichotomized items ("happened to me" versus the other response categories), as well as for non-dichotomized responses (i.e., full-scale responses). With regards to its reliability as a measure of direct trauma exposure, 12 of the 17 items produced Kappa coefficients of .40 or higher ($p<.001$). As expected, due to the multiple indirect exposure response options, Kappas were lower when the non-dichotomized responses were considered. However, despite this, the mean coefficient across items ($r = .47$, $p<.001$) was comparable to that produced by other PTE measures, such as the Traumatic Life Events Questionnaire (TLEQ). In the same study, the LEC demonstrated good convergence validity with the Traumatic Life Events Questionnaire (rs = .70). Results of the LEC were

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significantly correlated (in the predicted directions) with PTSD symptoms in the clinical sample (Gray et al., 2004). With regards to test-retest reliability (r = .88, p < .001), the LEC appears to be reasonably stable (i.e., the temporal stability of the measure indicated a direct-exposure Kappa ranging between .52 and .84; Gray et al., 2004). With regards to the Polish version (Rzeszutek et al., 2017), for all scales, Cohen's kappa exceeded .60. The value of test-retest coefficient amounted to r = .82 (p < 0.01). This supports the cross-cultural generalizability of traumatic experience and the usage of the LEC (and the LEC-5) within various contexts, including South Africa (Bae et al., 2008; Gray et al., 2004).

3.5.3 The Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5). This subsection will explore the PCL-5 as a measure of the dependent variable "level of PTS symptoms" experienced by the participant. Firstly, the rationale for using the PCL-5 as a measure of PTS is presented, followed by a discussion of the psychometric properties of the measure and its usage for this study. Lastly, a brief explanation of its reliability and validity statistics is presented.

The PCL-5 is one of the most widely used self-report measures of PTS (Weathers et al., 2013). However, in most surveys, respondents usually report a large number of traumatic events, making it difficult to carry out a separate PTSD assessment for each traumatic event experienced by each respondent. This problem is addressed by using their worst PTE as the focus of the PTSD assessment (e.g., Atwoli et al., 2013; Norris et al., 2003). Therefore, this measure was used in conjunction with the LEC-5 (see paragraph 3.5.2) by asking participants to record a series of PTS-related symptoms associated with their nominated worst event.

The PCL-5 is a 20-item self-report measure in a 5-point Likert scale format used to measure for present PTS symptoms related to the DSM-5 PTSD classification and guidelines (Blevins, Weathers, Davis, Witte, & Domino, 2015). It consists of four sub-scales namely 1) intrusion (5 items); 2) avoidance (2 items); 3) cognition and mood (7 items); and 4) arousal

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and reactivity (6 items). Participants are asked to report whether they have been bothered by PTS symptoms in the last month (e.g., Item 18: feeling jumpy or easily startled). The scale responses include: “not at all”; “a little bit”; “moderately”; “quite a bit”; and “extremely”, and are scored 0 to 4, respectively. Therefore, participants may achieve a final PTS score (i.e., total severity score) ranging from 0 to 80. The PCL-5 can be interpreted in several ways: 1) total severity score; 2) cluster severity score; 3) provisional PTSD diagnosis; and 4) cut-point suggestions (Blevins et al., 2015). Regarding the use of the PCL-5 in this study, the participants’ final score (i.e., total severity score) was dichotomized in order to record high and low PTS scores using the cut-point suggestion. According to Blevins et al. (2015), various cut scores for the original PCL have been used depending on the population (e.g., combat vs. civilian trauma), setting (e.g., primary care vs. tertiary institutions) and assessment goal (e.g., screening vs. differential diagnosis). It has been suggested that a higher cut-point score should be considered when attempting to make a provisional diagnosis whereas a lower cut-point score should be considered when used for screening purposes or when it is needed to detect possible cases (Weathers et al., 2013). Different PCL-5 cut scores have not yet been determined but the preliminary validation work suggests a cut-point score of 33 (Weathers et al., 2013). That is, participants with a score of 33 or higher may be categorised as having a high presence of PTS (i.e., are at high risk of developing PTSD), and any score lower as having a low level of PTS (i.e., low risk of developing PTSD). Therefore, for the purpose of this study, total PTS scores were dichotomised using the suggested cut-point score of 33. High PTS (>/=33) were coded “0” and low PTS (<33) were coded “1”.

In terms of the reliability and validity of the measure, the psychometric properties of the PCL-5 were examined in North American studies involving trauma-exposed university students (N = 278; Blevins et al., 2015), treatment-seeking military service members (N = 912; Wortmann et al., 2016), as well as an abbreviated version on a community sample of

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adults (Price, Szafranski, van Stolk-Cooke, & Gros, 2016). The PCL-5 scores showed strong test-retest reliability (r = .82), internal consistency (Cronbach's α = .94), and discriminant (rs = .31 to .60) and convergent (rs = .74 to .85) validity (Blevins et al., 2015). Wortmann et al. (2016) supported these results and reported that the PCL-5 is useful for identifying provisional PTSD diagnostic status and quantifying PTSD symptom severity. Although never used within the South African context, the original PCL measure (civilian version) which was developed according to the Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition (DSM-IV) criteria for PTSD (Blanchard, Jones-Alexander, Buckley, & Forneris, 1996) has been used in South African studies (e.g., Abler et al., 2014; Myer et al., 2008), and was shown to be a reliable and valid assessment measure to use within the South African context. Additionally, recent transcultural adaptions of the PCL-5 have been used internationally, in high-income contexts (or first-world countries) such as Sweden (Sveen, Bondjers, & Willebrand, 2016), Germany (Krüger-Gottschalk et al., 2017) and in low-income contexts (or third-world countries) such as Brazil (Osório et al., 2017). These studies indicated the PCL-5 to be a reliable and valid assessment tool within a variety of contexts which may include South Africa as a low-to-middle-income, third-world country.

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3.5.4 The Resilience Scale for Adults (RSA). This subsection will explore the RSA as a measure of the independent variable "resilience". Firstly, a discussion of the psychometric properties of the measure are presented, followed by the rationale for using the RSA and a description of its use in this study. Lastly, a brief explanation of its reliability and validity statistics is presented.

The RSA is a 33-item, self-report measure in a seven-point semantic differential scale format which measures resilience. Each item has a negative and a positive attribute at the end of the scale continuum. In order to reduce acquiescence-biases, half of the items are reversely scored. Higher scores indicate higher levels of protective resilience factors. The

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RSA aims to determine an individual's resilience through assessing six protective factors at various levels. The six protective factors include: 1) Social competence (Cronbach alpha α = .83); 2) Planned future (α = .73); 3) Perception of self (α = .74); 4) Structured style (α = .80); 5) Social resources (α = .74); and 6) Family cohesion (α = .80). While the first four factors assess protective factors at a personal (internal locus of control) level, the latter two assess protective factors at a social (external locus of control) level (Hjemdal et al., 2006; Hjemdal, Roazzi, Dias, & Friborg, 2015).

The RSA was chosen as it evaluates social and family protective factors of resilience. These factors are interpersonal resources constructed from relationships that are perceived to be meaningful in terms of support when facing adversities and stress (Morote, Hjemdal, Martinez Uribe, & Corveleyn, 2017). Therefore, the RSA presents a model that transcends trait characteristics and individual self-appraisal to recognise the relevance of resources within an individual's environment. This is supported by an ecological systems perspective which conceptualises resilience as the combination of, and interaction between, various factors as stemming from the interplay between personal and social resources (Waller, 2001). Therefore, this model may be especially relevant for evaluating protective mechanisms in multicultural contexts such as South Africa, where social support networks play a vital role in adaptation, recovery and general well-being. It is argued that the tendency of quantitative studies to utilise questionnaires or sub-scales of questionnaires means that the focus is usually on traits or resources associated with resilience, rather than resilience itself (Theron & Theron, 2010). Therefore, with regards to its use in this study, the RSA's total score (which ranged from 33 to 231) was used in the statistical analyses in preference to the individual six sub-factor scores.

In terms of the reliability and validity of the RSA, a study undertaken on the cross-validation of the RSA (N = 482; Friborg, Barlaug, Martinussen, Rosenvinge, & Hjemdal,

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2005) showed good convergent and discriminant validity of the scale, as well as good test-retest correlations and internal consistency coefficients ranging from .76 to .86. Friborg et al. (2005) thus concluded that individuals scoring high on the RSA are psychologically healthier and better adjusted and therefore more resilient. In another study, the development of psychiatric symptoms following stressful life events was moderated by the RSA (Hjemdal et al., 2006), hence endorsing a protecting effect. Cross-cultural validation studies such as the comparative study between Norway (N = 314) and Brazil (N = 222; Hjemdal et al., 2015), and a study conducted on 373 undergraduate students at Iran university (Jowkar, Friborg, & Hjemdal, 2010) showed the RSA to be a valid and reliable scale for the assessment of resilience protective resources in at least those three populations. To-date, no cross-cultural comparison has been conducted on a South African population but has, however, been used in a recent study conducted by Mokoena (2010) which showed good internal reliability coefficients ranging from .97 to .99.

3.6 Data Analysis

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A total of 164 questionnaires were collected, however, after checking and cleaning the data in order to validate the collected questionnaires, six questionnaires were excluded as they were found to be incomplete (i.e., respondents had withdrawn from the study). Thus, only 158 questionnaires were used for analysis. Each questionnaire was given an identification number and the data was then captured and coded in Excel prior to analysis. The data were then exported from Excel and analysed by use of the Statistical Package for the Social Sciences (SPSS).

Firstly, the internal consistencies of the measuring scales were calculated using Cronbach's alpha (α) as the reliability coefficient. Next, descriptive statistics were generated for all variables. These were used to interpret demographic characteristics of the sample as well as exposure to trauma, level of resilience and the occurrence of PTS. Thirdly, frequency

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tables were generated for all variables, which were used to interpret the range of exposure to trauma, average level of resilience and the occurrence of PTS within the sample. Following this, a correlation analysis using Pearson's Product-Moment Correlation and Kendall's tau was undertaken to ensure that there were no high correlations (multicollinearity) among the predictor variables. Then, a logistic regression analysis was undertaken in a stepwise manner according to the main and secondary aims of the study: the main aim of the study is an exploration of the extent to which resilience mediates negative outcomes with regards to PTS. A secondary aim of the study is an investigation of how demographic variables and differences in terms of exposure to trauma also mediate negative outcomes.

3.6.1 Motivation for the data analysis. The logistic regression analysis was undertaken in order to determine the relationship and predictive validity of each of the five independent variables on the single dependent variable. Logistic regression was chosen as the appropriate statistical method for analysing the data collected as firstly, there are multiple independent (predictor) variables that determine the dependent (outcome) variable. Secondly, the outcome is measured as a dichotomous variable (Field, 2009). Data were entered into the model in the order specified by the researcher (i.e., stepwise regression), according to the research questions. That is, with PTS entered as the outcome variable, the demographic variables (i.e., gender and SES) were entered into the first model. The second model included the two trauma-related variables (i.e., direct and indirect exposure types). Finally, the resilience variable was included in the last model. This method was chosen as stepwise regression is often used in the exploratory phase of research as the goal is to discover relationships and there are no a-priori assumptions (hypotheses) regarding the relationships between the variables (Field, 2009). Additionally, the logistic regression is a predictive analysis. Therefore, logistic regression was also chosen in order to describe data

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and to explain the aforementioned relationship(s) between one dependent variable and one or more independent variables.

The five independent variables were: gender, SES, direct exposure, indirect exposure, and resilience. The first two 'demographic' variables were measured by a biographical questionnaire, the next two 'trauma' variables were measured by the LEC-5, and the last single 'resilience' variable by the RSA. Gender was coded as 0 = female and 1 = male. Income level (i.e., SES) was measured as a categorical variable and coded as 1 = low income (monthly income of <R3000); 2 = middle income (monthly income between R3000 and R10000); and 3 = high income (monthly income of R10000<). Low income was used as the reference category in the analysis. Both trauma variables were measured as a continuous score, with higher scores indicating an increase in exposure to different types of events. Resilience was measured as a continuous variable with higher scores indicating a higher level of resilience. The dependent variable was PTS as measured by the PCL-5. The PCL-5 produces a total PTS score ranging from 0 to 80. For the correlation analysis, the total PTS score was used (i.e., a continuous variable). However, a dichotomised variable was needed for the logistic regression analysis. The PCL-5 manual indicates a general cut-point score of 33 (Blanchard et al., 1996). Therefore, those who scored 33 and above were coded 0 and labelled "high PTS" (high risk of developing PTSD) and those with scores with less than 33 were coded 1 and labelled "low PTS" (low risk of developing PTSD).

In summary, logistic regression analyses were conducted to identify the relationships between PTS and the three group variables; demographic variables, exposure to traumatic events, and resilience. The five variables (from the three groups) were computed as independent variables, and PTS as the dependent variable.

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3.7 Ethical Considerations

Ethical clearance was obtained by the Senate of Higher Committee and approved by the registrar of the University of the Western Cape. Permission was subsequently obtained from the lecturers and tutorial leaders for the use of their class in order to distribute the questionnaires. Permission was obtained from the participants who were asked to complete an informed consent form (see Appendix B). Participants were informed of their right to terminate participation at any point in time and were assured of the anonymity of their responses as the questionnaire did not require names of respondents. Additionally, the information sheet provided (which was attached to the consent form and questionnaires) outlined the nature of the study, benefits and potential risks involved in being a participant (Appendix A). This was also communicated verbally by the researcher prior to the completion of the survey. Thus, the study depended on informed and voluntary participation. This was a low-risk study as there were no known risks with regards to participation in the study. However, cautionary measures were undertaken and participants were provided with the contact number and the location of the Centre for Student Support Services at the University of the Western Cape in the event that they may feel psychologically distressed after completion of the questionnaires. The researcher did not know or have any personal relationship with any of the participants. Furthermore, the researcher's beliefs and values were not imposed on the participants in any way. Completed consent forms and questionnaires were stored in a locked drawer and electronic research working papers were stored on a password-protected personal computer. All records were destroyed after completion of the research.

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CHAPTER 4

RESULTS

The aim of this study was to investigate the relationship between the demographic characteristics and resilience factors associated with the development of posttraumatic stress (PTS), and the extent to which demographic factors and type of trauma also mediate this relationship, when there is exposure to trauma. The results are reported according to the aims of the study. This chapter provides the results which originate from the research methods described in the previous chapter. Firstly, the internal consistencies for the Resilience Scale for Adults (RSA) and the Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5) are presented. Internal consistency for the Life Events Checklist for DSM-5 (LEC-5) was not undertaken and will be discussed. Following this, the descriptive statistics for the dependent and independent variable(s) are given. Then, the results of the Pearson's product-moment correlation and logistic regression analysis are presented.

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4.1 Internal Consistencies of Measuring Scales

Using Cronbach's alpha (α) as the reliability coefficient, this section reports on the results of the internal consistency of the two measuring scales (the RSA; and the PCL-5). A reliability coefficient of .7 to .8 was used as a measure for a satisfactory value for Cronbach alpha (Field, 2009). The results are displayed in Table 4.1.1 and Table 4.1.2, respectively. The reliability coefficient for the LEC-5 was not undertaken and will be discussed.

4.1.1 Resilience. The internal consistency for the reliability coefficient for the RSA in this study was determined for the full scale and can be seen in Table 4.1.1.

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Table 4.1.1

Cronbach's Alpha Coefficients of the Resilience Scale for Adults

Scale	**Items (N)**	**Cronbach's α**
RSA	33	.893

Note: RSA = The Resilience Scale for Adults

It is clear from Table 4.1.1 that the internal consistency for the reliability coefficient for the RSA in this study yielded a Cronbach alpha coefficient (.893) which indicated that the RSA is a reliable measure of resilience. This is supported by previous studies (e.g., Friborg et al., 2005) which showed a reliability coefficient of .88, as well as in a South African study (Veenendaal, 2008) which showed a reliability coefficient of .89.

4.1.2 Posttraumatic stress symptoms. The internal consistency for the reliability coefficient for the PCL-5 in this study was determined for the four subscales as well as the full scale and can be seen in Table 4.1.2.

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Table 4.1.2

Cronbach's Alpha Coefficients of the Posttraumatic Stress Disorder Checklist for DSM-5

Scale (Subscale)	**Items (N)**	**Cronbach's α**
PCL-5	**20**	**.939**
Intrusion	5	.867
Avoidance	2	.867
Cognition and mood	7	.883
Arousal and reactivity	6	.845

Note: PCL-5 = The Posttraumatic Stress Disorder Checklist for DSM-5

The internal consistency for the reliability coefficient for the PCL-5 in this study was determined for the four subscales as well as the full scale. Both the intrusion subscale (5 items) and the avoidance subscale yielded a Cronbach alpha coefficient of .867, whereas the

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cognition and mood subscale (7 items) as well as the arousal and reactivity subscale (6 items) yielded a Cronbach alpha coefficient of .883 and .845, respectively. The reliability coefficient for the PCL-5 full scale is .939. This indicated that the PCL-5 is a reliable measure of PTS symptoms in accordance with the DSM-5 classification guidelines. This is supported by previous studies showing a similar Cronbach's alpha of .94 (Blevins et al., 2015).

4.1.3 Exposure to trauma. The internal consistency for the reliability coefficient for the LEC-5 was not undertaken due to the response format. In a previous study where the internal consistency of the 17 items was considered, it was shown by a Cronbach alpha value of .667 (Bae et al., 2008). However, it is argued by several authors that due to trauma exposure being a multidimensional construct, internal consistency is not a property of these types of measures. Instead, temporal stability is used to determine the reliability of the instrument (Bae et al., 2008; Gray et al., 2004). With regards to this study, temporal stability was not measured due to the once-off, cross-sectional nature of data collection. However, the LEC was found to have good temporal stability (retest r = .88, 1-week interval, N = 104), in an earlier study (e.g., Bae et al., 2008). This is supported by a Polish adaptation of the LEC-5 which indicated a test-retest coefficient that amounted to r = .82 (p < 0.01). Thus, supporting the cross-cultural generalizability of traumatic experience and the measure within various contexts, including South Africa (Bae et al., 2008; Gray et al., 2004; Rzeszutek et al., 2017).

4.2 Descriptive Statistics

This section identifies the descriptive statistics for the dependent variables across the levels of the independent variables. The sample characteristics were calculated and are presented in Table 4.2. The frequency statistics are displayed in Table 4.3.1, Table 4.3.2, and Table 4.3.3. The means and standard deviations (SD) are displayed in Table 4.4.

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4.2.1 Sample characteristics. The demographic characteristics of participants are displayed in Table 4.2 below.

Table 4.2

Demographic Characteristics of Participants at the University of the Western Cape (N=158)

Characteristic	N	%
Age		
18-22	117	74.1%
23-27	27	17%
28-32	2	1.3%
33+	12	7.6%
Gender		
Male	41	25.9%
Female	117	74.1%
Year of Study		
1st year	22	13.9%
2nd year	65	41.1%
3rd year	39	24.7%
4th year	8	5.1%
Unspecified	23	14.6%
Missing data	1	0.6%
Income		
<R3000	30	19%
R3000-R10000	57	36.1%
R10000<	67	42.48%
Missing data	4	2.5%
'Race'		
'White'	5	3.2%
'Black'	45	28.8%
'Coloured'	102	65.4%
'Indian'	2	1.3%

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Other	2	1.3%
Missing data	2	1.3%
Religion		
Christian	129	81.6%
Islam	13	8.2%
Catholic	2	1.3%
Other	6	3.7%
Missing data	8	5.1%
Language		
English	71	44.9%
Afrikaans	46	29.1%
Xhosa	28	17.7%
Other	13	8.2%

Table 4.2 indicates that most of the participants were female (74.1%) versus males who comprised 25.9% of the sample. In terms of their age, the majority of the participants were between the ages of 18 and 22 (74.1%%), with 92.4% of the sample being under the age of 33. The sample consisted mainly of 'Coloured' (64.6%) individuals, followed by 'Black' (28.5%), 'White' (3.2%), and 'Indian' (1.3%) individuals. The last 1.3% classified themselves as Other ("human"). 1.3% were missing. In terms of religious affiliation, Christian faith was predominant (81.6%) within the sample, followed by Islam (9.2%) and Catholic (1.3%). The 'other' (e.g., Atheist, Agnostic, Jewish) made up the remaining 3.7%, with 5.1% missing. The participants were predominantly English (44.9%), Afrikaans (29.1%) and Xhosa (17.7%) speaking, with Zulu, Sotho, Sepedi, and SiSwati comprising the remaining 8.2% of the sample. 81% of the sample had at least a household income of more than R3000 per month (i.e., middle-to-high income) with 19% being considered as coming from low socioeconomic backgrounds (i.e., income less than R3000 per month). 2.5% were missing. In terms of their year of study, 13.9% were in their 1st year, 41.1% in their 2nd,

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24.7% in their 3rd, and 5.1% in their 4th year. 14.6% were unspecified as they answered '2016' or '2017' as their year of study. 0.6% were missing.

4.2.2 Frequency distribution. This subsection identifies the range of exposure to trauma, levels of PTS as well as the level of resilience that was reported by the sample. The frequency distribution of the different variables can be seen in Table 4.3.1, 4.3.2 and 4.3.3, respectively.

Table 4.3.1

Frequency Distribution of Exposure to Trauma (N=158)

The LEC-5	N	%
Overall Exposure to Trauma		
None	1	0.6
Single	0	0
Multiple	157	99.4
Type of Exposure		
Direct		
None	2	1.3
Single	6	3.8
Multiple	150	94.9
Indirect		
None	16	10.1
Single	8	5.1
Multiple	134	84.8
Level of Exposure		
Personally experienced		
None	19	12
Single	40	25.3
Multiple	99	62.7
Witnessed it		
None	15	9.5

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Single	26	16.5
Multiple	117	74.1
Learned about it		
None	16	10.1
Single	9	5.7
Multiple	133	84.2
Part of my job		
None	150	94.9
Single	5	3.2
Multiple	3	1.9

Note: LEC-5 = The Life Events Checklist for DSM-5

Inspection of Table 4.3.1 shows that, of the 158 participants, the majority of participants (99.4%) reported multiple exposures to PTEs (2 or more), none reported having experienced only a single event and one participant reported never having experienced a potentially traumatic event (0.6%). Of those who reported experiencing multiple traumas, 98.7% reported directly experiencing at least one PTE and 89.9% reported indirectly experiencing at least one PTE. In terms of direct exposure, 88% had personally experienced a PTE whereas 90.5% of the sample had witnessed a PTE. Regarding indirect exposure, 89.9% of the sample had learned about a PTE and only 5.1% reported being exposed to aversive work-related details. In summary, apart from 'part of my job', the majority of participants experienced multiple exposures to trauma across the levels of exposure.

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Table 4.3.2

Frequency Distribution of the Posttraumatic Stress Symptoms (N=158)

The PLC-5	**N**	**%**
Level of Posttraumatic Stress		
Low	99	62.7
High	59	37.3

Note: PCL-5 = The Posttraumatic Stress Disorder Checklist for DSM-5

Table 4.3.2 shows that of the 158 participants, 62.7% experience low levels of PTS symptoms whereas 37.3% of participants report a high presence of PTS symptoms**.**

Table 4.3.3

Frequency Distribution of Resilience Scores (N=158)

The RSA	**N**	**%**
Level of Resilience		
Low	1	0.6
High	157	99.4

Note: RSA = The Resilience Scale for Adults

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For descriptive purposes, the total RSA score was dichotomized into a low- and a high resilience categories using the median (99) as a split point, a method used in Friborg (2006). Inspection of Table 4.3.3 shows that majority of the participants (99.4%) had high resilience (a score equal to or above 99).

4.2.3 Means and standard deviations. This subsection identifies means and standard deviations for PTS, resilience, and types of exposure to trauma, respectively. The statistics are presented in Table 4.4.

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Table 4.4

Means and Standard Deviations of Posttraumatic Stress Symptoms, Resilience and Traumatic Life Events (N=158)

Measures	Mean	SD
PCL-5		
Posttraumatic Stress Symptoms	27.9	18.66
RSA		
Resilience	167.27	27.88
LEC-5		
Direct Exposure	6	3.39
Experienced it	3	1.98
Witnessed it	3	2.51
Indirect Exposure	5	3.59
Learned about it	5	3.54
Part of my job	0	0.74

Note: PCL-5 = The Posttraumatic Stress Disorder Checklist for DSM-5; RSA = The Resilience Scale for Adults; LEC-5 = The Life Events Checklist for DSM-5

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Results in Table 4.4 indicate that on average, participants had a mean PTS symptom score of 27.9 (SD = 18.66). The average resilience score for the sample was 167.27 (SD = 27.88). In terms of exposure to potentially traumatic events (PTEs), on average, participants were directly exposed to 6 PTEs. Of that, 3 were personally experienced and 3 were witnessed. Additionally, participants were indirectly exposed to 5 PTEs. Of that, 5 were learned about whereas none were experienced through work-related details.

4.3 Correlation Analysis

A Pearson's Product-Moment Correlation was applied to determine whether there is a relationship between PTS, gender, types of exposure to trauma, and resilience. Next, Kendall's tau was applied to determine whether there is a relationship between PTS and

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socioeconomic status (SES). Kendall's tau was chosen over Spearman's (rho) as it is insensitive to error and is preferred when there is a smaller sample size (Field, 2009). These correlation analyses were undertaken to ensure that there were no high correlations (multicollinearity) among the predictor variables. Table 4.5.1 and Table 4.5.2 report on these results, respectively.

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Table 4.5.1

Correlations Between Gender, Resilience, Direct and Indirect Exposure to Trauma, and Posttraumatic Stress Symptoms

Variable		1	2	3	4	5
1. Gender	Pearson Correlation	1				
	Sig. (2-tailed)	-				
	N	158				
2. Resilience	Pearson Correlation	.023	1			
	Sig. (2-tailed)	.776	-			
	N	158	158			
3. Direct Exposure	Pearson Correlation	.106	.018	1		
	Sig. (2-tailed)	.183	.824	-		
	N	158	158	158		
4. Indirect Exposure	Pearson Correlation	-.057	.107	.046	1	
	Sig. (2-tailed)	.478	.180	.566	-	
	N	158	158	158	158	
5. Posttraumatic Stress	Pearson Correlation	-.058	-.234**	.203*	-.026	1
	Sig. (2-tailed)	.468	.003	.011	.744	-
	N	158	158	158	158	158

Note: **. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

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Results from Table 4.5.1 indicate two significant relationships. Firstly, a weak negative relationship between PTS and resilience, $r = -.234$, $p < .01$. Secondly, a weak positive relationship between PTS and direct exposure, $r = .203$, $p < .05$. No significant relationships were found for gender ($r = -.058$, $p = .468$) and indirect exposure to trauma ($r = -.026$, $p = .744$).

Table 4.5.2

Correlations Between Posttraumatic Stress Symptoms and Socioeconomic Status

Variable		1	2
1. Posttraumatic Stress	Correlation Coefficient	1	
	Sig. (2-tailed)	-	
	N	158	
2. Socioeconomic Status	Correlation Coefficient	-.104	1
	Sig. (2-tailed)	.099	-
	N	154	154

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Results from Table 4.5.2 also indicate no significant relationships between PTS and SES ($r = -.104$, $p = .099$). Thus, both Table 4.5.1 and 4.5.2 indicate no multicollinearity amongst the predictive (independent) variables, and two significant relationships: a negative relationship between PTS and resilience; and a positive relationship between PTS and direct exposure to trauma. Therefore, all variables were used in the logistic regression analysis.

4.4 Logistic Regression Analysis

In accordance with this study's aims, a logistic regression analysis was conducted to examine the relationship and specific predictions regarding PTS and the three group variables; demographic variables, type of exposure to traumatic events, and resilience. The three group variables were computed as five independent (predictor) variables namely, SES,

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gender, direct and indirect exposure to trauma, and resilience. PTS was computed as the single dependent (criterion) variable. The results of the logistic regression for the three groups of independent variables predicting PTS, entered in a stepwise manner, are displayed in Table 4.6.1, Table 4.6.2 and Table 4.6.3, respectively.

4.4.1 Model I: Demographic predictors. Model I included SES and gender as the independent variables, and PTS as the dependent variable (Table 4.6.1). The full demographic model was not significant (p = .500, chi-square 2.369 with df = 3) and explained 2.1% of the variance (Nagelkerke's R^2 = 0.021). Neither SES nor gender were significant within the model.

Table 4.6.1

Model I: Logistic Regression Analysis of Demographic Factors Predicting Posttraumatic Stress

Independent Variable	**B**	**S.E.**	**Wald**	**df**	**Sig.**	**Exp(B)**	**95% CI for Exp(B)**	
							LL	UL
Gender	-.006	.385	.000	1	.987	.994	.467	2.114
SES			2.353	2	.308			
Low	.616	.459	1.797	1	.180	1.851	.752	4.553
Middle-High	.650	.452	2.068	1	.150	1.915	.790	4.644
Constant	.001	.371	.000	1	.998	1.001		

Note: Exp(B)=OR=odds ratio; CI=confidence interval; LL=lower limit; UL=upper limit; df=degree of freedom; Model chi-square =2.369; Nagelkerke's R^2 = 0.021; df = 3

4.4.2 Model II: Demographic and exposure to trauma predictors. In addition to gender and SES, Model II included direct and indirect exposure to trauma (Table 4.6.2). Like Model I, this model was not significant (p = .259, chi-square 6.516 with df = 5) and explained

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5.6% of the variance (Nagelkerke's R^2 = 0.056) indicating that the addition of exposure to trauma increased the amount of variance within PTS scores by 3.5%, however, the variables remained insignificant.

Table 4.6.2

Model II: Logistic Regression Analysis of Demographic Factors and Exposure to Trauma Predicting Posttraumatic Stress

Independent Variable	**B**	**S.E.**	**Wald**	**df**	**Sig.**	**Exp(B)**	**95% CI for Exp(B)**	
							LL	UL
Gender	.091	.394	.053	1	.818	1.095	.506	2.370
SES			2.237	2	.327			
Low	.617	.472	1.714	1	.191	1.854	.736	4.672
Middle-High	.643	.458	1.965	1	.161	1.901	.774	4.670
Direct Exposure	-.095	.050	3.549	1	.060	.910	.825	1.004
Indirect Exposure	.039	.050	.618	1	.432	1.040	.943	1.148
Constant	.353	.500	.498	1	.480	1.424		

Note: Exp(B)=OR=odds ratio; CI=confidence interval; LL=lower limit; UL=upper limit; df=degree of freedom; Model chi-square = 6.516; Nagelkerke's R^2 = 0.056; df = 5

4.4.3 Model III: Demographic, exposure to trauma and resilience predictors.

The full model (Table 4.6.3) which included demographic variables (SES and gender), types of exposure to trauma (direct and indirect), and resilience, was significant (p = 0.003, chi-square 19.709 with df = 6) indicating that the predictors as a set reliably distinguished between high and low PTS symptoms with a substantial increase in the variance explained. The combined predictors explained 16.4% of the variance (Nagelkerke's R^2 = 0.164).

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Therefore, with the addition of the 'resilience' variable, it explained an additional 10.8% of variance in PTS outcomes. Prediction success overall was 70.1% (44.8% for high PTS and 85.4% for low PTS) which showed an increase from the constant only model with a prediction success of 62.3% (0% for high PTS and 100% for low PTS).

Table 4.6.3

Model III: Logistic Regression Analysis of Demographic Factors, Exposure to Trauma and Resilience Predicting Posttraumatic Stress

Independent Variable	**B**	**S.E.**	**Wald**	**df**	**Sig.**	**Exp(B)**	**95% CI for Exp(B)**	
							LL	UL
Gender	.050	.414	.014	1	.905	1.051	.467	2.365
SES			1.797	2	.407			
Low	.562	.496	1.282	1	.258	1.754	.663	4.638
Middle-High	.625	.485	1.658	1	.198	1.868	.722	4.833
Direct Exposure	-.102	.052	3.868	1	.049	.903*	.816	1.000
Indirect Exposure	.030	.053	.320	1	.572	1.030	.929	1.143
Resilience	.023	.007	11.927	1	.001	1.024**	1.010	1.037
Constant	-3.354	1.188	7.970	1	.005	.035		

Note: Exp(B)=OR=odds ratio; CI=confidence interval; LL=lower limit; UL=upper limit; df=degree of freedom; Model chi-square =19.709; Nagelkerke's R^2 = 0.164; df = 6

**. Correlation is significant at the 0.01 level (2-tailed)

*. Correlation is significant at the 0.05 level (2-tailed).

As seen in Table 4.6.3, within Model III, two significant relationships were found. Resilience was significant in this model as the Wald criterion demonstrated that resilience

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made a significant contribution to prediction (p = .001). The slope for resilience was positive (0.023) indicating that as resilience increased, the risk for PTS decreased. That is, the Exp(B) value indicates that when resilience is increased by one unit, the odds ratio (OR) is 1.024 times as large (OR (95% CI) 1.024 (1.010-1.037), p = .001). Therefore, resilient students are 1.024 times more likely to have a low PTS score. Direct exposure was also found to be significant (p = .049). The slope for direct exposure was negative (-.102) indicating that as direct exposure increased, the risk for PTS increased. The Exp(B) value for direct exposure indicates that for every PTE an individual is directly exposed to, the odds that they may develop high PTS increases by .903 (OR (95% CI) .903 (.816-1.000), p = .049). In other words, direct exposure to trauma increases the chances of an individual having high PTS by .903. Gender, SES and indirect exposure to trauma were not significant predictors.

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CHAPTER 5

DISCUSSION

This chapter discusses the results of the quantitative analysis (Chapter four). Firstly, by briefly discussing the internal consistency results as well as giving an overview of the descriptive statistics. Then, by discussing the results of the logistic regression analysis in accordance with the study's research aims. This is followed by a summary and conclusion. Finally, the limitations and recommendations for future research are made.

5.1 Internal Consistencies

The internal consistency as a measure of reliability was computed for two of the study's measures, namely the Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5) and the Resilience Scale for Adults (RSA). The Life Events Checklist for DSM-5's (LEC-5) internal consistency was not measured due to the response format of the instrument. The LEC-5 measured types of exposure to potentially traumatic events (PTE), the PCL-5 measured posttraumatic stress (PTS) symptoms, and the RSA measured individual resilience. The Cronbach alpha (α) coefficient exhibited acceptable levels in terms of the internal consistency for the PCL-5 and RSA. Thus, showing that the various items included in the PCL-5 (that propose to measure PTS) and the RSA (that propose to measure resilience), produce similar scores and are therefore considered to be reliable measures of the respective constructs. Internal consistency for the LEC-5 was not undertaken due to the response format. However, the LEC-5 was found to have good temporal stability (i.e., test-retest reliability) in other studies (e.g., Bae et al., 2008; Rzeszutek et al., 2017). Albeit a different reliability measure, the temporal stability of the LEC-5 shows it to be a reliable measure as it

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would produce similar scores (i.e., participants would endorse the same types of traumas when re-tested). As a result, all measures were included in the further analyses.

5.2 Overview of the Descriptive Statistics

5.2.1 Sample characteristics. From the total sample, majority were female (74.1%). Majority of the participants were racially classified as 'Coloured' (64.6%), followed by 'Black' (28.5%), 'White' (3.2%), and 'Indian' (1.3%) individuals. As previously mentioned, it is necessary to problematize race. Racial classification has been strongly objected and contested within the South African context due to the history of oppression and segregation stemming from the Apartheid regime. It may explain why two individuals classified themselves as 'human'. This racial profile is similar to the racial profile of the university. The reported age of students ranged from 18 to 53 years, with majority (74.1%) being between the ages of 18 and 22. This is considered to be the typical age range of individual's in undergraduate and honours programmes. The participants were mainly English speaking (44.9%), which reflected the predominant language of instruction at the institution. Majority (81%) of the sample had at least a household income of more than R3000 per month and were thus classified as middle-to-high socioeconomic status, with just under a quarter (19%) being considered as coming from low socioeconomic backgrounds. Although the SES results do not reflect the SES of the general South African population, it may reflect the SES associated with those who attend a tertiary institution. That is, those who are able to afford tertiary education and/or those who have been awarded bursaries, for example. Therefore, the demographic characteristics are representative of the university from which this sample was drawn. Importantly, the sample specific to the university (i.e., UWC) is perhaps more typical of the general population than other universities in that it is considered to be a historically disadvantaged university that catered for the racially segregated communities during the Apartheid regime. In saying this, typically there have been criticisms regarding

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the usage of university samples in research in that they are not representative of the broader South African population. However, as can be seen in terms of the racial demographics and even the distribution in SES, this sample is likely more representative than other samples.

5.2.2 The levels of exposure to trauma, posttraumatic stress, and resilience. In terms of exposure to trauma and types of exposure to trauma, results from this study indicate that the prevalence of exposure to at least one PTE was 99.4% in the total sample. These results also indicated that the majority of participants (all except for one) were exposed to multiple traumas (i.e., two or more). In comparison to international studies (e.g., Bae et al., 2008; Kessler, 1995) and South African studies (Atwoli et al., 2013; McGowan & Kagee, 2013; Suliman et al., 2009; Williams et al., 2007), results reflect similar high rates. Majority of participants in this study also experienced multiple traumas across the levels of exposure (with exception of 'part of my job' where majority were not exposed to work-related trauma details). Findings show that 88% and 90.5% of the sample had personally experienced and witnessed a PTE, respectively, and 89.9% reported learning about a PTE. Thus, showing equally high numbers of exposures between exposure types, making direct and indirect exposure comparable within the sample. Although it is difficult to make direct comparisons due to the use of different instruments to measure trauma exposure across different studies, the other studies reflect similar high rates (cf Atwoli et al., 2013; Kaminer et al., 2013). Participants from this study were directly exposed to 6 PTEs and indirectly exposed to 5 PTEs on average. In comparison, Atwoli et al. (2013) reported an average of 4.3 lifetime PTEs. The above reflects similar rates, highlighting the increased risk of exposure to multiple forms and types of trauma across levels of exposure, therefore supporting this study's context in relation to the broader South African context.

The sample's average PTS score indicated that as a whole, the sample displayed lower PTS symptoms and thus were at low-risk of developing PTSD. However, of the participants

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measured, 37.3% achieved a score indicating high PTS symptoms and are thus at high risk of developing PTSD following exposure to trauma. A study undertaken by Atwoli et al. (2013) and Suliman et al. (2009) on South African adults showed lower prevalence rates. However, the difference between this study's findings and the other ones may be due to the aforementioned studies basing their findings on confirmed PTSD diagnoses and not PTS symptoms suggesting risk for developing PTSD. Thus, these results cannot be compared directly but are seen to support the trend for increased vulnerability due to multiple traumas.

The total resilience scores from the sample were dichotomized into high- and low-resilience scores. Of the total sample, 99.4% achieved a score indicating high resilience. Additionally, the average resilience within the sample was considered to be 'high' (mean = 167.27) in that scores below 99 are considered to be indicative of 'low' resilience (Friborg, 2006). Comparative studies indicating overall resilience levels within the general population are limited due to the multidimensional concept of resilience, therefore, these scores are considered to be relative to the sample. The main reason for this is due to resilience studies relying on the theoretical explanation of scores rather than direct statistical comparisons (Friborg, 2006). In light of the current study's results, it may be inferred that high levels of resilience indicate the presence of protective individual characteristics with specific reference to social competence, planned future, good perception of self and structured style as well as access to supportive social resources which included good family dynamics and social cohesion. For further exploration and understanding, resilience was used in the logistic regression analysis, and will be discussed in greater detail in the following section.

5.3 The Relationship Between Resilience, Demographic Factors, Types of Exposure to Trauma, and Posttraumatic Stress

The aim of the study was to investigate the relationship between resilience, certain demographic factors (i.e., gender and SES), and types of exposure to trauma (i.e., direct and

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indirect exposure) in relation to the development of PTS in order to identify and better understand possible risk and protective factors associated with resilience when there is exposure to trauma. More specifically, the primary aim was to explore the extent to which resilience mediates negative outcomes with regards to PTS. The secondary aim of the study was an investigation of how demographic variables and differences in terms of exposure to trauma also mediate negative outcomes.

Initial results from the Pearson's Product-Moment and a Kendall's tau correlation analysis showed two significant relationships: a weak negative relationship between PTS and resilience; and a weak positive relationship between PTS and direct exposure to trauma. In short, these results point to an association between these variables. That is, firstly, with an increase in resilience there is a decrease in PTS symptoms. Secondly, with an increase in direct exposure to trauma there is an increase in PTS symptoms. However, the risk or protective nature of these factors in relation to the other measured variables are still unaccounted for and cannot be inferred from this analysis alone.

In light of this, three logistic regression models were undertaken in a stepwise progression in accordance with the three research questions outlined in Chapter one. Therefore, the following discussion will be structured in accordance with the aforementioned research questions. Results from the logistic regression model showed two significant relationships: 1) a significant relationship between direct exposure to trauma and PTS; and 2) a significant relationship between resilience and PTS. No other significant relationships were found for indirect exposure to trauma, SES, and gender. The ecological-systems theory proposed by Bronfenbrenner (1977) is helpful in understanding and interpreting the results of this study. That is, by expanding on previous research regarding resilience, this discussion aims to explore resilience as a dynamic, fluid construct in that it develops from the

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combination of numerous risk and protective factors within various systems as well as the reciprocal, interchangeable relationship between these systems.

Demographic differences have been identified as a crucial area in trauma research due to the varying levels of exposure and responses to trauma within given contexts (Mills et al., 2011). With regards to this study, both gender and SES were found to be non-significant. This suggests that, within this sample, demographic factors alone do not serve as protective or risk factors with regards to the development of PTS. Therefore, despite the argued potential PTS risk and protective factors associated with demographic characteristics, the findings from this study do not reflect this. As previous research had not focussed on the combination of these variables in relation to trauma, it was difficult to estimate what these variables would do. Where SES and gender were studied separately, the influence each variable had on the development of PTS varied across contexts (e.g., Atwoli et al., 2013; Brewin, Andrews, & Valentine, 2000). This may indicate the extent to which additional factors or context specific characteristics may have influenced outcomes. In accordance to the ecological systems framework adopted in this study, these results may be understood by looking at the sample characteristics in context.

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In terms of gender, a frequently replicated finding in the epidemiology of PTSD is the prevalence of female cases (Breslau & Anthony, 2007). Research has shown that women are arguably 75% more likely than men to develop PTSD (Jayawickreme et al., 2011) and report more severe PTS symptoms than males (McGowan & Kagee, 2013), thus indicating 'risk'. However, female sex was significantly associated with elevated PTSD risk in all the countries apart from South Africa (Atwoli et al., 2013). This is likely attributed to two main findings highlighted in international and South African literature.

Firstly, despite the increased PTSD risk associated with females, research has also shown that females tend to demonstrate more resilience after exposure to a traumatic event

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(Sun & Stewart, 2007). This is likely attributed to the fact that women and men respond differently to exposure to trauma with regards to their chosen coping strategies and stressor appraisal (Nolen-Hoeksema & Aldao, 2011; Padmanabhanunni et al., 2017). Additionally, females are also found to receive a greater level of social support following a traumatic event, and are more likely to seek help or rely on other protective resources when exposed to trauma (McGowan & Kagee, 2013). Therefore, within a given context, additional factors (e.g., access to protective resources) may offset the influence gender (i.e., being female) has on negative outcomes (e.g., PTS). In terms of this study, the instrument used to measure resilience (i.e., the RSA) included a 'social resources' subscale. As previously mentioned, research shows that females tend to receive a greater level of social support following a traumatic event. This, in turn, would increase the 'social resources' subscale. Therefore, as supported by the high resilience scores within the sample, it may be argued that females likely had access to and demonstrated a greater reliance on protective resources associated with resilience. That is, females within this study may have had access to social support systems as well as protective individual characteristics which likely offset the influence exposure to trauma had in terms of gender differences and the development of PTS.

However, this can only be speculated as the current study did not measure the RSA's individual subscales in relation to gender differences with regards to trauma and PTS outcomes. Nevertheless, what this does show is that it may be important to study resilience in terms of gender differences when there is exposure to trauma, especially within the South African context. That said, most epidemiological studies on trauma and PTS (e.g., Atwoli et al., 2015) do not take resilience into consideration in that, together with resilience-related factors, demographic characteristics may have contributed differently toward the development of PTS (i.e., played a greater protective or risk role) when exposed to multiple traumas, as seen by this study's results.

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Secondly, it is argued that the lack of association between demographic factors (e.g., gender) and PTSD risk in South Africa is primarily related to its historical underpinnings which contributed toward a unique trauma exposure within the country (Atwoli et al., 2015). That is, continuous trauma. For example, it is argued that the gender difference is not necessarily accounted for by the increased risk of exposure to trauma or the uneven distribution of specific event types associated with an increased risk for PTSD. Rather, gender difference may be traced to the occurrence of PTSD following exposure itself, especially when the traumatic events involve assaultive violence (Breslau & Anthony, 2007). This is especially true in the South African context where both males and females are exposed to increased levels of assaultive violence (i.e., physical assault in males and sexual assault in females; McGowan & Kagee, 2013). In line with this, another frequently replicated and interrelated finding concerns a suspected sensitizing effect of a prior trauma on the PTSD risk from a subsequent traumatic event (Breslau & Anthony, 2007). It was found that, compared to men, the PTSD risk is higher in women who have experienced a prior traumatic event which reflects a process of sensitization induced by the earlier trauma. Therefore, due to the high levels of violence and trauma that occurs (i.e., continuous trauma), it may be argued that a sensitization process likely takes place. Thus, firstly, implicating the potential influence trauma may have on the general population and, secondly, offsetting the gender effect within the South African context, in turn, reducing gender differences with regards to trauma exposure and subsequent psychopathological development.

In summary, the gender outcome highlights potential differences in access or usage of resources which may vary in interaction within differing contexts (i.e., international versus South African contexts). In other words, the influence of protective and risk factors associated with gender may change depending on circumstance or context. It may be argued that within this study's context (and the broader South African context), females were able to

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access and utilize available resources in order to develop positive and functional coping strategies. Additionally, results may also point to a possible sensitization process that takes place, especially within a South African context where exposure to trauma is high irrespective of gender. However, this study did not focus on gender differences in exposure to trauma and recovery thereof. Therefore, the above is speculated as it cannot be inferred that the non-significant result is solely due to either resilience or trauma differences. Results of this study simply show that gender is not a significant protective or risk factor with regards to the development of PTS when there is exposure to trauma.

Regarding the second demographic variable, SES, the non-significant result may be attributed to one of two main reasons. Firstly, literature has shown that shows that elevated levels of distress have been observed among individuals in low SES groups (e.g., Laffaye et al., 2003; Turner & Lloyd, 1995). This was attributed to trauma risk in that violence is found to be more prevalent in lower socioeconomic settings (Otwombe et al., 2015). It also argued that low SES individuals are more often exposed to negative, unpredictable and stressful life events (Brady & Matthews, 2002; Turner & Lloyd, 1995) and that particular types of negative events such as greater exposure to discrimination and violence are more likely to characterise the life experience of individual's from low SES environments (Clark et al., 1999; Otwombe et al., 2015; Selner-O'Hagan et al., 1998). However, the majority of the participants from this study had at least a household income of more than R3000 per month and were thus classified as middle-to-high SES. Therefore, one premise may have been that the due to the majority of the sample being considered as coming from middle-to-high SES environments (which are not typically associated with elevated levels of exposure or increased PTSD risk), may have led to a non-significant outcome. However, it can be seen that majority of the participants were indeed exposed to elevated levels of trauma. The results from this study indicated that the majority of participants (all except for one) were

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exposed to multiple traumas (i.e., two or more). Therefore, a more likely explanation may lie in that poverty or SES-related risk factors (e.g., increased exposure to trauma) are offset by access to resources within differing contexts.

That said, with regards to the context from which this sample was drawn, university students represent a microcosm of the broader South African society and population. It has been argued that trauma exposure in post conflict and low-income countries such as South Africa (where access to resources and trained professionals is typically low) leads to negative outcomes (Atwoli et al., 2015; Otwombe et al., 2015). Therefore, the non-significance of SES may not necessarily be attributed to the type or level of trauma exposure itself but rather potential protective influences associated with high SES or related contextual factors such as attending a tertiary institution. For example, it may be argued that those who were able to access university-level education were able to overcome possible systematic risk factors associated with the South African context. In accordance to Ungar's (2013) viewpoint, individual's attending a university and who were able to access tertiary education may be regarded as being within a particular environment that has the capacity to facilitate growth relative to its context. Thus, they were able to overcome the broader contextual risk factors, access supportive resources and trained professionals within their current system and, in turn, mediate the negative outcomes associated with increased trauma exposure.

A second reason for the non-significant outcome may be attributed to the measure of SES itself. In this study, monthly income was used to determine SES. However, although income and/or expenditure are the most commonly used proxies for measuring poverty (Africa, 2018), it may not necessarily be the most reliable measure in determining SES. Instead, other measures of SES such as employment status, occupation or level of education may be better indicators (Gaur, 2013). In saying this, Atwoli et al. (2015) reported that the only demographic factor associated with risk of traumatic event exposure in South Africa was

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employment status, with employed individuals being at significantly higher risk of traumatic event exposure compared with those who were unemployed. This suggests that not only may employment status be a better indicator for determining SES within the South African context, it may also point to potential risk and protective factors associated with employment in terms of trauma exposure. Furthermore, this study used R3000 as a cut-off in defining low-SES. However, the latest South African statistics showed an upper-bound poverty line (UBPL) of R992 per person per month (pppm; Africa, 2018). That said, we are not able to estimate whether participants in the low- or even middle-SES categories fell above or below the poverty line. For example, persons coming from a household earning R3000 per month may be living with five individuals, therefore, falling below the poverty line (R600 pppm). However, another individual earning the same may be living alone or with a single other and would thus be considered as being above the threshold for poverty. This suggests that results from this study likely inaccurately estimated those coming from the various SES backgrounds, especially low-SES backgrounds.

In summary, the non-significant SES outcome may be attributed to the context from which the sample was drawn. That is, firstly, those who were able to access university-level education were able to overcome possible systematic risk factors associated with the South African context. Secondly, individual's attending a university may be regarded as being within a particular environment that has the capacity to facilitate growth relative to its context. Lastly, the outcome may also be attributed to the difficulty in measuring SES and therefore not accurately categorising and assessing SES-related risk and protective factors.

Overall, the non-significance of the demographic variables may also be considered in light of the South African context as well as factors not measured in this study. That is, Atwoli et al. (2015) found that compared to European and Asian countries, demographic factors showed little association with PTSD risk in South Africa due to its historical

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underpinnings in terms of exposure to violence, continuous trauma and continued systematic discrimination. It is therefore argued that within the tertiary institutional environment and relative to the broader South African context, demographic factors (i.e., SES and gender) do not interact sufficiently to significantly influence the variations in PTS outcomes. Instead, the variations may be better accounted for by other factors. For example, religion may be considered to be an influential factor with regards to trauma and psychological recovery thereof in that religion as a coping mechanism and resource may significantly predict outcomes to life stressors (Leaman & Gee, 2012). Limited research on the role religion plays with regards to exposure to trauma and the development of PTSD has been undertaken in a South African context. As suggested in an earlier, these factors will need to be explored in future research.

As mentioned previously, trauma-specific factors were also considered in this study. Due to the country's unique trauma history and rates of exposure to (i.e., continuous trauma; Williams et al., 2007), it is argued that differences in trauma exposure may be a better predictor of negative outcomes than demographic differences (Atwoli et al., 2013). Trauma exposure in South Africa may be seen in, firstly, the differences in the types of traumas, and secondly, continuous trauma. As seen in this study, majority of participants experienced multiple traumas across the levels of exposure (with exception of 'part of my job' where majority were not exposed to work-related trauma details). Although it is difficult to make direct comparisons due to the use of different instruments to measure trauma exposure across different studies, other South African studies reflected similar high rates (e.g., Atwoli et al., 2013; Kaminer et al., 2013). This highlights the increased risk of exposure to multiple forms and types of trauma across levels of exposure. However, the relative effect of direct and indirect exposure within this context is unknown. Therefore, in light of the cumulative

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trauma experience within the South African context, trauma exposure was considered in terms of the types of exposure to trauma.

There is evidence that exposure to both indirect and direct violence may independently affect mental health (May & Wisco, 2016). The results from this study reflect this. Results from the logistic regression analysis showed a significant relationship between direct exposure to trauma and PTS. That is, the model showed that with an increase in direct exposure to trauma, individuals are more likely to have high PTS and are thus at high-risk of developing PTSD. This is consistent with both international (e.g., Kim et al., 2009; May & Wisco, 2016; Zimering et al., 2006) and South African (e.g., Barbarin et al., 2001) research.

The significant outcome with regards to the direct exposure variable may be attributed to one of three interrelated explanations. Firstly, it may be explained by exposure to trauma itself. That is, exposure to trauma has been associated with the development of PTS symptoms due to the dangerous circumstances or violent nature of the acts involved in these events (Atwoli et al., 2013; Hamber & Lewis, 1997). This is consistent with the current findings as the results from this study indicate that direct exposure to trauma does indeed influence PTS outcomes. In light of this, it may be argued that it was the threat and/or the intense fear response associated with the traumatic event that contributed toward the development of the symptoms (APA, 2013). That is, the traumatic events experienced by the participants likely overpowered their ability to cope resulting in a manifestation of symptoms associated with one or more of the experienced traumas. However, the differences in the types of traumatic events and their individual relationship with PTS outcomes were not studied. Therefore, few inferences can be made regarding the influence specific trauma-types had on PTS outcomes within the sample.

What may be inferred is that the direct experience of the events significantly contributed toward the development of PTS. As mentioned previously, traumatic events (e.g.,

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physical assault) may be experienced in one of several ways. With regards to this study, PTS was significantly associated with direct exposure (i.e., personally experiencing a traumatic event and witnessing a traumatic event). However, it cannot be estimated which 'subtype' contributed more toward the significant outcome as they were not separately measured. Nevertheless, an in-depth understanding of the direct exposure 'subtypes' may be necessary in order to better understand the significant outcome in relation to the South African context. Thus, leading to the second possible explanation for the significant outcome.

Findings from Lopes et al.'s (2015) longitudinal study show a strong association between both 'subtypes' of direct exposure and the occurrence of psychological distress. However, the relationship between exposure to witnessing violence and the persistence of psychological distress was stronger than exposure to personally experiencing a violence incident. It was argued that although both 'subtypes' independently affect mental health; it may be the experience of witnessing violence that plays a greater role in maintaining such problems. This is especially important to consider within the South African context as the most common traumatic events experienced within the general and student population are witnessing a violent event and the unexpected death of a loved one (Atwoli et al., 2013; McGowan & Kagee, 2013). Additionally, it has also been found that PTSD risk after trauma exposure was highest for witnessing traumatic events and not personal experience as seen in international studies (Atwoli et al., 2013). This may be attributed to contextual and cultural differences. For example, in terms of the South African context, it may be attributed toward the cultural world-view of 'Ubuntu', the 'Black' African philosophy that emphasises humanity and group solidarity which includes compassion, dignity, and respect for others (Mokgoro, 2017). That is, 'Black' South African individuals are likely to be as or even more traumatised by witnessing a traumatic event as they are if it were to happen to them personally. However, even though this has been explained in light of 'Black' South Africans'

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experience, it is also seen within the general South African population (Atwoli et al., 2013). Therefore, the relative impact of witnessing traumatic events and direct exposure, in general may be related to historical influences. That is, the current high rates of violence in South African public spaces are as a result from the apartheid regime and lead to increased trauma exposure which in itself leads to increased risk for PTS (Atwoli et al., 2015; Kaminer & Eagle, 2010). This leads to the last explanation regarding the significant outcome.

As mentioned previously, the general South African population is exposed to multiple traumas (Williams et al., 2007). Therefore, it is necessary to consider the possible implications the accumulation of traumatic experiences have on PTS outcomes. Although not measured in this study, it may be an accumulation of direct exposure to multiple traumas that make the difference in terms of negative outcomes. This argument points to a cumulative trauma burden where multiple traumas confer a greater PTSD risk than exposure to a single trauma. This is supported by literature that has examined the cumulative or aggregate effect of trauma (e.g., Breslau et al., 1999; Karam et al., 2014; May & Wisco, 2016; Williams et al., 2007). As violent crime and trauma are currently normative within South African society (Hamber & Lewis, 1997), it contributes toward the continuation of cumulative traumas. In light of this, it may be important to consider the history of trauma exposure when discussing the aggregate effect. There is evidence that any consecutive trauma following a specific type of index trauma is associated with a greater risk of PTSD (Breslau et al., 1999; Breslau & Anthony, 2007). That is, individual's who have experienced multiple events involving assaultive violence in childhood were more likely to experience PTSD from trauma in adulthood. Furthermore, previous events involving assaultive violence (single or multiple, in childhood or later on) were associated with a higher risk of PTSD in adulthood (Breslau et al., 1999). This translates to the South African context where the most common types of trauma involve assaultive violence (i.e., physical assault in males and

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sexual assault in females; McGowan & Kagee, 2013). Together, these findings suggest that direct trauma in the form of assault may be they key type of trauma having the greatest determination and effect on PTS outcomes with regards to cumulative trauma within the South African context. However, this may only be inferred as the current study did not study the differences in types of traumas nor the effect of cumulative trauma.

With regards to the second trauma variable (i.e., indirect exposure), results from the logistic regression analysis did not show a significant relationship between indirect exposure to trauma and PTS. As mentioned previously, there is evidence that exposure to both indirect and direct violence may independently affect mental health. However, the chances of developing PTSD from indirect exposure is lower than that from direct exposure (Kim et al., 2009; May & Wisco, 2016; Zimering et al., 2006). Therefore, one explanation for the non-significant outcome may be attributed to the context of multiple traumas. That is, the aforementioned studies did not take the cumulative trauma burden into consideration. Instead, their results were based on PTSD risk following exposure to a single trauma. Therefore, within a context of multiple traumas, the relative effect of indirect trauma may change, thus possibly explaining this discrepancy and non-significant outcome. For example, in the context of multiple trauma, the effect of indirect trauma lessens or is superseded by consecutive traumas involving direct exposure to trauma (Breslau et al., 1999).

To offer an explanation for why direct exposure was significant versus the non-significant outcome for indirect exposure is where it becomes problematic. Few studies have offered direct comparisons between exposure types. Those who have (e.g., Barbarin et al., 2001; May & Wisco, 2016) mainly compared PTSD risk associated with single, same-trauma types. Furthermore, these findings suggested that exposure to indirect violence produces effects parallel to those observed when the violence involves direct exposure (Barbarin et al., 2001) which are in contradiction to this study. This study's results may, therefore, be better

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understood by looking at the sample within context, and in terms of the other variables considered.

Direct exposure was found to be significant only in the presence of the resilience variable (i.e., direct exposure was non-significant when resilience was omitted from the logistic regression model). This suggests an interaction between resilience and direct exposure to trauma with regards to the development of PTS, and not simply between direct exposure to trauma and PTS. This result may be explained in two ways. Firstly, the non-significant result with regards to both direct and indirect exposure (when excluding the resilience variable) corroborates with Atwoli et al.'s (2015) notion of unique trauma exposure within the South African context. That is, institutionalized discrimination and political violence were typical during the apartheid rule, with the majority of the population being exposed to multiple traumas (Kaminer & Eagle, 2010). This may have resulted in little variation in the trauma-outcome link in terms of demographic and contextual differences. Interestingly, this pattern remains despite the abolishment of apartheid 24 years ago, years before majority of the participants were born. It highlights the potential effect of continuous and multiple traumatic experiences across generations, possibly maintained by current systems within an individual's environment that are the result of the systematic and institutionalised discrimination as seen during apartheid. Unlike international (predominantly European) countries where the differences in types of exposure to trauma and the subsequent development of PTS shows a prominent and significant relationship (e.g., May & Wisco, 2016; Zimering et al., 2006), this is not necessarily the case in South Africa.

However, when the resilience variable was added, direct exposure to trauma was significant with regards to the development of PTS. Therefore, the second explanation for the different outcomes may be attributed to the potential role resilience and related factors play in the above trauma-outcome interaction within the South African context. Ungar's

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(2013) principles may be helpful in further exploring and understanding this study's results. In terms of the South African context, Ungar's (2013) perspective highlights the importance of considering the broader picture of trauma-recovery and development of resilience in light of the country's volatile political history and associated risk factors. That is, the apartheid rule created a post-conflict environment which has, in turn, required an individual to adapt and change their way of relating within their various systems thus influencing the presence and relative effect of risk and protective factors. For example, the lack of association between demographic factors and PTSD risk within South Africa compared to international statistics (Atwoli et al., 2015) may be an example of how risk factors drive growth in terms of resilience development in differing contexts. Therefore, the same may be argued for increased exposure to trauma. That is, when resilience is considered in the presence direct exposure to trauma, direct exposure is significantly associated with an increase in PTS. This, in turn, highlights process of trauma recovery in relation to resilience (Bensimon, 2012; Bonanno & Diminich, 2012). Simply put, with an increase in direct exposure to trauma, overall individual resilience may develop. However, this process does not exclude the occurrence of the negative effects of direct trauma (hence the significant outcome). It is also not arguing that resilience is a result of directly experiencing trauma. Rather, resilience may develop from the undertaken coping strategies and adaptive mechanisms following direct exposure, which may also include the effect of maladaptive coping in resilience (Bonanno, 2004; Bonanno & Diminich, 2012).

Furthermore, it may be perceived that the significant outcome with regards to direct exposure may be related to the nature of directly experiencing a traumatic event. That is, individuals who are directly exposed may seek more support and therefore directly confront their trauma which ties into the concept of resilience development. Alternatively, despite similar levels of indirect exposure within the sample group, indirect exposure was found to be

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non-significant. This may be accounted for by the difference in subsequent PTS symptom development following direct and indirect exposure. That is, individuals exposed to trauma indirectly are less likely to sustain PTS symptoms (Kim et al., 2009; May & Wisco, 2016; Zimering et al., 2006). Therefore, there may be a difference in an individual's recovery trajectory in that they may experience symptoms differently and be less likely to seek support. Thus, impeding the opportunity for resilience to develop. This supports the argument that even risk factors may drive growth in terms of resilience development. That is, contrary to the typical definition of resilience, resilience is not simply something that occurs or exists prior to trauma but rather develops from associated risk and protective factors (Ungar, 2013), including factors associated with exposure to trauma itself.

In terms of the extent to which resilience mediates negative outcomes with regards to PTS, a significant relationship was found between resilience and PTS. The logistic regression model showed that with an increase in resilience, individuals are more likely to have low PTS symptom severity scores. They are thus at low-risk of developing PTSD following exposure to a traumatic event. In light of this result, it may be argued that resilience acts as a mediator between exposure to trauma and PTS symptom development. Resilience is therefore considered to be protective in nature in that it reduces or mediates the risk of an individual developing PTSD when there is exposure to trauma or adversity. This is supported by the majority of resilience-trauma research which identifies the protective role specific resilience-related characteristics play in negative outcomes associated with trauma (e.g., Atwoli et al., 2013; Bensimon, 2012; Hjemdal et al., 2006). However, due to the variations in the definition of resilience across literature, a greater exploration of this study's concept of resilience within the South African context is necessary.

Resilience within this study was viewed as a multidimensional construct which included both personal traits as well as social coping and support mechanisms. Furthermore,

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from an ecological perspective, it was argued that aspects of an individual's environment may promote and protect against the negative impact of exposure to traumatic events thus contributing toward the development of resilience (Ungar, 2014; Visser, 2007). Therefore, it may be argued that the high level of resilience within the sample (mean = 167.27), and the significant outcome within the logistic regression model, may be related to the context from which this sample was drawn. For example, the instrument used to measure resilience (i.e., the RSA) included a 'planned future' and 'social resources' subscale. Looking at the sample (i.e., university students) and the context (i.e., a tertiary institution), it may be argued that firstly, university students may comprise of individuals who are working toward future oriented goals (e.g., completing a degree in order to do specific work). This, in turn, may have increased their 'planned future' subscale score, increasing their overall resilience score. Secondly, due to the context in which university students find themselves, they may also have access to resilience-enhancing resources which the general population do not have access to. For example, university students have access to social resources such as counselling services, peers and lecturing staff. Peers have been reported as resilience promoting primarily because they afford opportunities for social acceptance and the development of positive identity and values (Pillay & Nesengani, 2006). In turn, this may have increased their 'social resources' subscale score. Both of these examples show how a combination of contextual (extraneous) and internal factors may have increased overall resilience within this sample.

This notion and viewpoint is supported by the work of Ungar (2013). He argues that environmental and individual interactions related to resilience may be understood using three principles; firstly, resilience is related more to the quality of the environment and its potential to facilitate growth within the individual than it is an inherent or fixed individual characteristic (Ungar, 2013). This supports the previous argument regarding aspects associated with attending a tertiary institution and its contribution toward the development of

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resilience. Secondly, resilience has a differential impact in that it looks both the same and different between and within contexts, with mechanisms that are individual, cultural and contextually sensitive in terms of their predictive value on positive outcomes (Ungar, 2013). In other words, within any given context, no two individuals are similarly resilient. Also, their resilience may change given the context. For example, those attending university may not necessarily be considered as resilient. However, in light of trauma exposure, those who rely on the supportive structures within the institution during times of duress are considered to be within an environment that is resilience-developing and are, in turn, resilient themselves. Furthermore, their resilience is shaped by their 'chosen protective resources' which are individually, culturally and contextually sensitive (e.g., seeing a psychologist versus going to church, shul, mosque, etc.). Lastly, depending on the amount of risk exposure, the impact that any single factor has on resilience differs between individuals (Ungar, 2013). That is, there is cultural variation in terms of protective mechanisms related to recovery from trauma. This highlights the potential contribution contextual factors have toward the development of individual resilience. In turn, this interaction is considered to be protective against the negative impact of exposure to traumatic events and may be even extended to include other adversities such as poverty.

That said, this study looked at resilience in relation to discrete adversity (i.e., trauma) and not chronic adversity (e.g., poverty). However, resilience has been explored in multiple contexts of risk within the South African context. Of these, those related to chronic adversity included township living and poverty (e.g., Theron, 2007), AIDS orphans (e.g., Ebersöhn, 2007), resource-poor, rural areas (e.g., Ebersöhn, 2008), and high risk, urban settings (Johnson & Lazarus, 2008). Within these studies, resilience has been associated with positive outcomes and context specific protective factors. For example, within a context of poverty, community support was argued to be resilience-promoting (Ebersöhn, 2008). That is,

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community support related to communities that promoted the sharing of expertise, food, clothing, financial resources, and advice, as well as collaborated to limit violence and crime (Ebersöhn, 2008). This again supports the notion of resilience as a multidimensional construct in that it changes between contexts given the nature of exposure and its relationship with various internal and external characteristics. Furthermore, it highlights the need for context-specific intervention programmes aimed at enhancing particular protective factors associated with individuals, systems and contextual factors.

In summary, within a tertiary context, university students may be considered as a typically resilient group with regards to trauma exposure due to the interaction between individual characteristics and contextual factors. However, this can only be speculated as the current study did not measure the RSA's individual subscales in relation to trauma and other risk or protective factors. Therefore, from these results, it is not clear whether a specific dimension of resilience mediated the negative effects of exposure to trauma, or whether it was a combination of other related factors (i.e., internal characteristics or contextual factors). This study looked at resilience in relation to discrete adversity (i.e., trauma) and not chronic trauma (e.g., poverty). Studies that look at chronic stressors also support resilience as a mediating factor (e.g., Ebersöhn, 2008; Theron, 2007). This supports the notion of resilience as a multidimensional construct in that it changes between contexts given the nature of exposure and its relationship with various internal and external characteristics. Furthermore, it should be noted that with the addition of the resilience variable, a large amount of variance was explained in PTS outcomes. In other words, majority of the variance in the PTS scores may be accounted by the resilience variable, illuminating the important role resilience plays in the trauma-outcome link. Therefore, future research is crucial in understanding these differences. Research should thus be aimed at exploring the various dimensions of resilience

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in order to identify which aspect of resilience made the greatest difference in mediating negative outcomes.

5.4 Summary and Conclusion

The main aim of the study was to investigate the relationship between certain demographic factors (i.e., gender and SES), types of exposure to trauma and resilience in relation to the development of PTS in order to identify and better understand possible risk and protective factors associated with resilience. Descriptive statistics from this study indicated that the majority of participants were exposed to multiple traumas which reflected similar South African prevalence rates. This highlighted the increased risk for negative outcomes. On average the sample experienced low PTS symptoms indicating low-risk for developing PTSD. However, these specific results were not comparable to local or global PTSD prevalence rates due to the study reporting on symptom severity rather than diagnostic considerations. Overall, the results supported the trend for increased vulnerability due to multiple traumas. The sample produced overall high resilience scores indicating the presence of protective individual and social characteristics. Results from the logistic regression analyses showed that only resilience and direct exposure to trauma was significant. That is, with an increase in resilience, individuals are more likely to have low PTS symptom severity scores. They are thus at low-risk of developing PTSD following exposure to a traumatic event. However, direct exposure only became significant in the presence of resilience which highlighted the process of trauma recovery in relation to resilience. No other significant relationships were found for gender, SES, and indirect exposure. The main reason for this may be attributed to the complexity and multidimensional construct of resilience in that, aspects of an individual's environment may, in addition to social resources and personal characteristics, contribute toward the development of resilience. Therefore, relative to the broader South African context, in this study gender, SES and indirect exposure differences do

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not interact sufficiently with resilience to significantly influence the variations in PTS outcomes within a student population and a tertiary institutional context.

In conclusion, results from this study support and reiterated the importance of resilience in relation to the development of PTS, with specific reference to the student population. Therefore, from these results, three main things may be inferred. Firstly, resilience acts as a mediator between exposure to trauma and PTS symptom development. Secondly, the non-significance of demographic variables (as possible risk or protective factors), even in relation to trauma and resilience, may possibly be attributed to other factors (e.g., South Africa's volatile political history). Lastly, direct exposure being significant in the presence of resilience highlights the notion of resilience developing from the process of recovery from trauma. Additionally, it is argued that although individual resilience can be enhanced through training and personal development in a variety of areas (physical fitness, meditation, cognitive reframing, and mindfulness), it can also be improved through increasing the individual's positive interactions with family, organizations, and community (Sippel et al., 2015). Therefore, identifying specific contextual differences will better inform intervention efforts and the relative role resilience plays in mediating the effects of PTS within differing, multi-contextual environments.

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5.5 Limitations

The limitations to the study included the following; firstly, causality cannot be inferred due to the correlational and cross-sectional design employed. Rather, significant results would suggest associations (Bless et al., 2006). Secondly, convenience sampling is a non-probability sampling method which may result in either an under- or over-representation of particular groups within a sample which makes generalisation risky (Bless et al., 2006). That is, the implications of this type of sampling method include lack of generalisability to the larger population, rather, these findings should be used solely to understand the sample at

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hand. Therefore, results of the study are indicative of the recruited sample and caution should be made when attempting to infer results to the larger population of undergraduate and honours students. Despite the racial demographic characteristics of the sample reflecting the demographics of the university (Govinder et al., 2013), the sample who participated in the study at the university may not be generalized to other South African community samples, in that the participants had at least a Grade 12 education and majority were from middle-to-high SES contexts. Additionally, majority of the participants were female which may lead to possible implications in terms of generalisability for males due to lack of gender-specific variation within the sample.

5.6 Recommendations

It is recommended that the findings of the present study regarding PTS and resilience among students the University of the Western Cape be used as the basis for a national study (in full or only partially) with more participants, at other universities, focusing on exposure to trauma, resilience and related PTS symptoms. More specifically, it is recommended that future research focus an exploration of other demographic variables not measured in this study (e.g., religion), in relation to trauma exposure and negative outcomes. Additionally, due to the disparity in gender-trauma-resilience research, an in-depth exploration of the various dimensions of resilience in relation to gender differences is recommended. This may contribute toward a better understanding of the differences in outcomes found within this study, and contribute toward a better understanding of the role specific resilience and related protective factors interact within a differing contexts. Results from future studies regarding trauma and resilience could aid in the development of interventions to address negative outcomes such as PTS by identifying context specific risk and protective factors associated with resilience. Furthermore, as seen by the high incidences of exposure to trauma, the long-term solution would be to aim intervention efforts at reducing risk for exposure. However, in

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light of this study's results which show that resilience mediates negative outcomes when there is exposure to trauma, a short-term solution may be to increase intervention efforts focusing on resilience building specific to the context in which trauma is found.

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Appendices

Appendix A: Information Sheet

Appendix B: Letter of Consent

Appendix C: Biographical Questionnaire

Appendix D: The Life Events Checklist for DSM-5 (LEC-5)

Appendix E: The Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5)

Appendix F: The Resilience Scale for Adults (RSA)

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Appendix A

University of the Western Cape

DEPARTMENT OF PSYCHOLOGY
Private Bag X 17, Bellville 7535, South Africa, Telephone: (021) 959-2283/2453
Fax: (021) 959-3515 Telex: 52 6661

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INFORMATION SHEET

Project Title: An investigation into the relationship between exposure to violence, resilience and PTSD in a sample of psychology students at the University of the Western Cape

What is this study about?

This is a research project being conducted by Carla Anne Nortje at the University of the Western Cape. We are inviting you to participate in this research project because you are an undergraduate psychology student at the University of the Western Cape. The purpose of this research project is to better understand the relationship between exposure to trauma, PTSD and resilience, and aims to understand resiliency in terms of exposure to distressing life experiences and peoples response to them.

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What will I be asked to do if I agree to participate?

If you agree to participate, you will be asked to complete four self-report questionnaires namely, 1) a biographical questionnaire (e.g., what is your age?); 2) a life events checklist questionnaire (e.g., have you experienced a natural disaster?); 3) a trauma-symptoms (PTS) questionnaire (e.g., in the past month, how much were you bothered by repeated, disturbing dreams of the stressful event?); and 4) a resilience questionnaire (e.g., I feel that my future looks: *very promising* or *uncertain*). The study will be conducted during class time, and will take approximately 10-15 minutes to complete altogether. However, **participation in the research is not a course requirement and you may discontinue any time.**

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Would my participation in this study be kept confidential?

The researchers aim to protect your identity and the nature of your contribution. To ensure your anonymity, the surveys are anonymous and will not contain information that may personally identify you. To ensure your confidentiality, completed consent forms and questionnaires will be stored in a locked drawer and electronic research working papers will be stored on a password-protected personal computer. All records will be destroyed after completion of the research.

If we write a report or article about this research project, your identity will be protected.
In accordance with legal requirements and/or professional standards, we will disclose to the appropriate individuals and/or authorities information that comes to our attention concerning child abuse or neglect or potential harm to you or others. In this event, we will inform you that we have to break confidentiality to fulfil our legal responsibility to report to the designated authorities.

What are the risks of this research?

There may be some risks from participating in this research study (e.g., feeling uncomfortable with particular questions). All human interactions and talking about self or others carry some amount of risk. We will nevertheless minimise such risks and act promptly to assist you if you experience any discomfort, psychological or otherwise during the process of your participation in this study. Where necessary, an appropriate referral will be made to a suitable professional for further assistance or intervention. Additionally, you will be provided with the contact number the student counselling centre at the University of the Western Cape in the event that you feel psychologically distressed after completion of the questionnaires. Lastly, you may discontinue with the study at any time.

What are the benefits of this research?

There are no direct benefits of this research as it is not designed to help you personally, but the results may help the investigator learn more about resiliency in terms of exposure to distressing life experiences and peoples response to them.We hope that, in the future, other people might benefit from this study through improved understanding of exposure to trauma, PTSD and resilience. As a resilience study, this study can help better inform intervention efforts to develop protective factors in response to multiple exposures to trauma in low income contexts.

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Do I have to be in this research and may I stop participating at any time?

Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you decide not to participate in this study or if you stop participating at any time, you will not be penalized or lose any benefits to which you otherwise qualify.

What if I have questions?

This research is being conducted by Carla Anne Nortje, a psychology Master's student from the Department of Psychology at the University of the Western Cape. If you have any questions about the research study itself, please contact Carla, e-mail: *3601257@uwc.ac.za.*

Should you have any questions regarding this study and your rights as a research participant or if you wish to report any problems you have experienced related to the study, please contact:

Head of Department: Psychology
Dr Michelle Andipatin
University of the Western Cape
Private Bag X17
Bellville 7535
mandipatin@uwc.ac.za

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Research Supervisor: Department of Psychology
Mr Rashid Ahmed
University of the Western Cape
Private Bag X17
Bellville 7535
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This research has been approved by the University of the Western Cape's Senate research Committee and Ethics Committee.

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Appendix B

University of the Western Cape

DEPARTMENT OF PSYCHOLOGY
Private Bag X 17, Bellville 7535, South Africa, Telephone: (021) 959-2283/2453
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LETTER OF CONSENT

Dear student,

I, Carla Anne Nortje, a Clinical Psychology Masters student at the University of the Western Cape, am conducting a research project entitled: *An investigation into the relationship between exposure to violence, resilience and PTSD in a sample of psychology students at the University of the Western Cape*. This research project aims to understand resiliency in terms of exposure to distressing life experiences and people's response to them.

The items within these questionnaires assess your personal exposure to life events and your response to them. There are no right or wrong answers as they relate to your personal experience. Should any emotional distress arise from completing the questionnaire, psychological counselling can be obtained from the Institute of Counselling, University of the Western Cape: 959-2299.

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All information provided in these questionnaires will remain **confidential**. You are also urged to answer truthfully and accurately as possible. For us to obtain valid and reliable data, it would also be extremely helpful if all questionnaires are timeously completed. In addition to this, please be informed that you have the right to withdraw at any stage of the research process as well as access any information regarding the research process and results obtained.

☐ **I fully understand the research aims, my rights and my role as a participant in the study, as well as the issues related to confidentiality, as explained by the researcher as outlined above.**

_____ _____

Signature **Date**

Thank you for your cooperation and wish you all the best for your studies. You are welcome to email me regarding any queries: 3601257@uwc.ac.za

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Appendix C

Biographical Questionnaire

*Please read through the following questions carefully and mark the appropriate boxes with an '**X**' where necessary*:

Year of study: _____

Age: _____

Religion: _____

Gender: Male ☐ Female ☐

***Race:** White ☐ Black ☐ Coloured ☐ Indian ☐ Other ☐

If "Other", please specify _____

First Language: _____

Your estimated household income (per month) is:

Less than R3000 ☐ Between R3000 – R10000 ☐

More than R10000 ☐

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Relationship Status:

Single ☐ Boyfriend/Girlfriend ☐ Married ☐

Separated ☐ Divorced ☐

Employment: None ☐ **Part-time** ☐ **Full-time** ☐

Occupation: _____

Dependents: Yes ☐ **No** ☐

If yes, how many: _____

**** We do not support categorization along these lines, but thought it may be helpful for this study to obtain this data. We acknowledge that Apartheid created different experiences of oppression.***

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Appendix D

The Life Events Checklist for *DSM-5*

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Appendix E

The Posttraumatic Stress Disorder Checklist for DSM-5

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Appendix F

The Resilience Scale for Adults

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