

**THE EFFECTIVENESS AND FEASIBILITY OF ONLINE PROLONGED
EXPOSURE THERAPY FOR POST-TRAUMATIC STRESS AMONG UNIVERSITY
STUDENTS**

Submitted by

MARYNA SLABBERT

Thesis submitted in partial fulfilment of the requirements for the degree of

MASTER OF ARTS IN COUNSELLING PSYCHOLOGY

in the

Faculty of Humanities

at

Rhodes University

Supervisor:

Doctor Duane D. Booysen

July 2022

Declaration

I, Maryna Slabbert, hereby declare that this submission is a result of my own work, and that, to the best of my knowledge, it contains no material previously published or written by another person, except where due acknowledgment has been given in the text. This study has not been submitted before for any degree or examination at any university.

Acknowledgements

I would like to acknowledge and give my most sincere thank you to my supervisor, Duane who has not only made this study possible but also enjoyable. Thank you for your guidance, patience, trust, kindness, and consistency throughout.

Pappa, thank you for being my biggest supporter and for never allowing me to doubt myself and my capabilities. Mamma, thank you for being my safe place and for providing comfort on the difficult days. Annette, thank you for being my biggest cheerleader even when we are continents apart.

To Junior, thank you for believing in me, for countless cups of coffee and tea, and for making sure that I watch enough Karoo sunsets.

To my friends and colleagues, thank you for keeping me sane, for keeping me accountable, and for checking in. I appreciate you all.

To the three participants, thank you for allowing me to walk with you as you took on one of the most challenging, yet rewarding journeys of your life. I commend your strength, dedication, and trust in me, as well as this process. I dedicate this research study to you.

Lastly, thank you to my Lord who has granted me the privilege of walking with those who have faced hardships and for carrying me while doing so.

“I shall pass this way but once; any good that I can do or any kindness I can show to any human being; let me do it now. Let me not defer nor neglect it, for I shall not pass this way again.”

- Etienne de Grellet

Abstract

Research has found that 70.6% of university students reported exposure to several traumatic events (Hoffman, 2002). Considering the high prevalence of trauma exposure among South African university students, many are at risk of developing post-traumatic stress disorder (PTSD) (Iribarren, Prolo, Naegos & Chiappelli, 2005). Prolonged Exposure Therapy (PE) is regarded as a first-line trauma therapy for PTSD (Foa, Hembree, Rothbaum, & Rauch, 2019). During the Covid-19 pandemic, public health guidelines for physical distancing reduced access to face-to-face mental health care. In response to this, many health care providers adapted to pandemic constraints by meeting their clients online, through Zoom, for example (Wells et al., 2020). Considering the prevalence of trauma exposure among university students, as well as the increased necessity of teletherapy, the study aimed to investigate the effectiveness and feasibility of online PE for PTSD among university students in a South African setting. The study employed Single-Case Experimental Design (SCED) as basis for its research design. Participants included a sample of Rhodes University students ($n = 3$) who were recruited through purposive sampling. Prior to the intervention, all three participants met the criteria for PTSD, and comorbid depression. Based on the measures used, two of the three participants did not meet the criteria for PTSD post-intervention. In terms of depression symptoms, one participant did not meet the criteria for depression post-intervention, and another participant showed a decrease in depression symptoms. Regarding the feasibility of online PE, all three participants reported the intervention to be feasible, acceptable, and appropriate. Overall, the study provides preliminary results to support the effectiveness and feasibility of online PE. It also gives insight into the value of intervention research and how it can ameliorate PTSD in a South African setting, as well as other low- and middle-income countries (LMICs).

Keywords: Post-traumatic stress disorder, exposure therapy, prolonged exposure therapy, online prolonged exposure therapy, trauma amongst South African university students.

List of abbreviations

APA	American Psychological Association
BEP	Brief Eclectic Psychotherapy
CBT	Cognitive Behavioural Therapy
CPT	Cognitive Processing Therapy
CT	Cognitive Therapy
DSM	Diagnostic and statistical manual for mental disorders
DV	Dependent variable
EBT	Evidence-based therapy (EBT)
EPT	Emotional processing theory
ESTs	Empirically supported treatments
EBTs	Evidence-based treatments
EMDR	Eye movement desensitisation
HPCSA	Health Professions Council of South Africa
ICD	International Classification of Mental and Behavioural Disorders
ICT	Information and Communication Technologies
ISTSS	International Society for Traumatic Stress Studies
IV	Independent variable
LMIC	Low- and middle-income country
NET	Narrative Exposure Therapy
NICE	United Kingdom's National Institute for Health and Care Excellence
PCL-5	Post-traumatic stress disorder checklist for DSM-5

PE	Prolonged exposure therapy
PSSI-5	Post-traumatic stress disorder symptom scale interview for DSM-5
PTSD	Post-traumatic stress disorder
RPERC	Rhodes University Research Projects and Ethics Review Committee
RT	Reprocessing Therapy
RU-HREC	Rhodes University Human Ethics Committee
SAHRC	South African Human Rights Commission
SAM	Situationally accessible memory system
SASH	South African Stress and Health Study
SCED	Single case experimental design
SUD	Subjective units of distress
TBI	Traumatic Brain Injury
USA	United States of America
VAM	Verbally accessible memory system
WHO	World Health Organization
WMH	World Mental Health Survey

Brief glossary

Imaginal exposure	Imaginal exposure is a process during which the client visualizes and recounts trauma events aloud.
In-vivo exposure	In-vivo exposure entails real life exposure to safe situations, activities, places, and objects that the client is avoiding.
Habituation	The gradual process of symptom reduction within and across sessions due to imaginal exposure.
Over-engagement	A client's difficulty maintaining a sense of safety and grounding during imaginal exposure.
Under-engagement	A client's difficulty in accessing the emotional components of the trauma memory.
Effectiveness	The effectiveness of treatment, i.e., how well it works, is determined based on the client's symptoms or adaptive functioning over time
Feasibility	Whether or not treatment can be done performed relatively easily or conveniently given the existing resources and circumstances.

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Chapter 1

Introduction

1.1 Psychological trauma in South Africa

South Africa is described to be one of the most violent countries in the world and traumatic stress is engrained within the South African society (Williams et al., 2007).

Research shows that the lifetime prevalence of exposure to at least one traumatic event among the general South African population is estimated at 78.3% (n = 4351) (Williams et al., 2004). The South African Stress and Health Study (SASH) furthermore indicated that, in general, men experience more criminal-related traumas such as assault, while women are more prone to traumas which fall under the umbrella term of intimate partner violence, such as sexual assault (Williams et al., 2007). As a result, many South Africans are at risk of developing post-traumatic stress disorder (PTSD), which is considered a public health burden in South Africa (Iribarren et al., 2005; Williams et al., 2007; Kessler et al., 2017).

1.2 PTSD among South African university students

Crime at South African universities is a common problem, and that the most prevalent types of crimes on campuses include theft, burglary, sexual assaults, and gender-based violence among student populations (Hoffmann, 2002). Serrao (2014) reported that 247 cases of sexual violence, partner violence, and rape were reported at 15 South African universities between 2011 and 2014. Thus, high rates of trauma exposure have been found among South African university students, especially trauma types which falls under the umbrella of interpersonal violence (Hoffman, 2002; Kessler et al., 2017).

Research conducted by McGowan and Kagee (2013) at a large residential university in South Africa, indicated that 90% of the sample (n = 1337) reported at least one traumatic event in their lifetime. Almost 50% of respondents indicated that they had experienced more than

one traumatic event, and some respondents reported as many as seven traumatic events (McGowan & Kagee, 2013).

Considering these findings, many South African university students are at risk of developing PTSD, which is commonly associated with comorbid conditions such as depression, anxiety, and suicidal ideation (Bantjes, Kagee, McGowan & Steel, 2016). However, despite alarming statistics, there remains a mental health gap among university students and researchers have highlighted the limited access to mental healthcare services on campuses (Bantjes et al., 2020; Brown, 2018). Research indicates that only 18,1% of universities students sought mental healthcare, and that only 28,9% of students with mental disorders received treatment (Bantjes et al., 2020). Without early intervention and effective treatment, mental health issues may lead to a range of adverse outcomes, such as role impairment, academic difficulties, and suicidal behaviour (Bantjes et al., 2020).

1.3 Psychotherapy for PTSD

There are several empirically supported forms of psychotherapy which are used to treat PTSD. Forms of treatments that are highly recommended by the American Psychological Association (APA) include Cognitive Behavioural Therapy (CBT), Cognitive Processing Therapy (CPT) and Cognitive Therapy (CT). Furthermore, the APA conditionally recommends Brief Eclectic Psychotherapy (BEP), Eye Movement Desensitization and Reprocessing (EMDR) and Reprocessing Therapy (RT), and Narrative Exposure Therapy (NET) (American Psychology Association, 2013).

Prolonged Exposure Therapy (PE), a form of CBT, is a first line trauma therapy for PTSD (Foa et al., 2019). Many studies have demonstrated the effectiveness of PE in treating PTSD, which has led to it being a leading treatment for PTSD in the United States of America (USA) (Rothbaum et al., 2000). The effectiveness and efficacy of PE has also been assessed in various contexts (i.e., Israel, Poland, and Japan), as well as against a variety of comorbid conditions

(De Bont, Van Minnen, & De Jongh, 2013; Ghafoori, 2018). However, research on the effectiveness and feasibility of PE in low- and middle-income countries (LMICs) such as South Africa is sparse and calls for further investigation in this field (Booyesen & Kagee, 2020).

PE is an 8-15 session manualized exposure-based trauma therapy which consists of four primary components (Peterson, Foa & Riggs, 2019). These include imaginal exposure, education about common post-trauma reactions to normalize the experience, in vivo exposure, and emotional processing (Peterson et al., 2019; Booyesen & Kagee, 2020).

1.4 Teletherapy

Psychotherapy has been found to be an effective form of treatment for a wide range of psychiatric disorders. Recent efforts have attempted to explore different pathways to increase access to psychotherapy. One of these pathways is teletherapy, which is more accessible than face to face psychotherapy as it goes beyond the financial, medical, and geographical constraints of many individuals (Gratzer & Goldbloom, 2016; Chipise, Wassenaar & Wilkinson, 2018). It has become increasingly popular over the last few years, and especially since the outbreak of Covid-19 (Monaghesh & Hajizadeh, 2020). During the Covid-19 pandemic, public health guidelines for physical distancing reduced access to face-to-face mental health care. By transitioning to online platforms, such as Zoom, health care providers were still able to meet with their clients to deliver health care services (Wells et al., 2020).

1.4.1 Teletherapy in South Africa

Teletherapy has been found to be a feasible method to offer psychological services during the Covid-19 pandemic, as well as for other reasons, yet little is known about students' experiences of teletherapy and its effectiveness and feasibility in low-resource settings, like South Africa (Gericke, Ebert, Breet, Auerbach & Bantjes, 2021; Situmorang, 2020). However, the global increase of teletherapy has opened a new doorway in South Africa and more studies are being conducted on it. Taken together, findings suggest that some South African first-year

university students may find teletherapy (internet-based cognitive behavioural therapy) acceptable and effective as a mode of delivering psychological treatment for symptoms of depression (Gericke et al., 2021).

The Health Professions Council of South Africa (HPCSA) has released a media statement stipulating guidelines on telemedicine in South Africa. However, nothing has been released or published regarding specific guidelines for teletherapy (Chipise et al., 2018).

1.4.2 PE and teletherapy

In response to the current pandemic challenges, researchers are exploring how PE can be used via online platforms, such as mobile applications to provide trauma therapy (Wells et al., 2020). The PE Coach, for example, is a mobile application which supports providers and patients who are engaged in a PE process (Reger et al., 2013). The application is equipped with supportive features for clients undergoing PE (Wells et al., 2020, p.381).

Empirical studies, such as one conducted by Franklin, Cuccurullo, Walton, Arseneau, & Petersen (2017) (n = 27), for example, demonstrate the effectiveness and feasibility of online PE. This study, amongst other, shows that evidence supporting the use of online PE is increasing, especially over the last decade (Wells et al., 2020).

1.5 Problem statement and rationale

Access to mental healthcare is a global problem, and even more so in low and middle-income countries (LMICs) like South Africa, where mental health services are plagued by several challenges (Koenen et al., 2017). The South African Human Rights Commission (SAHRC), for example, highlighted significant under-investment in mental health services in present-day South Africa (SAHRC, 2019). This challenge is worsened by the lack of availability of empirically supported treatments (ESTs), as well as a lack of trained professionals who can provide these treatments (Koenen et al., 2017). Similarly, access to mental health services among universities remain to be a point of concern (Bantjes et al., 2020).

Considering these longstanding issues, which have also been exacerbated by Covid-19, it was deemed necessary to investigate the feasibility and effectiveness of online PE for PTSD among university students. This is considered a priority to aim at reducing the treatment gap of PTSD in LMICs (Booyesen & Kagee, 2020).

1.6 Aims of the study

The broad aim of the study is to investigate the effectiveness and feasibility of online prolonged exposure therapy for traumatic stress among university students within a South African setting.

1.7 Research hypotheses

The research study was guided by the following hypotheses:

- Online prolonged exposure therapy will improve symptoms of PTSD and depression amongst university students in South Africa.
- Online prolonged exposure will be perceived as feasible to implement on an online platform among university students seeking trauma therapy for symptoms of traumatic stress and depression.

1.8 Thesis outline

Chapter 1 introduces the research context, problem statement and rationale, aims of the study, and concludes with the research hypotheses.

Chapter 2 presents a brief history of psychological theories of PTSD and describes the theoretical framework of PE. This is followed by a discussion of treatment challenges and limitations. The chapter concludes by making a theoretical prediction of the expected outcome of the intervention based on emotional processing theory EPT, which is the chosen theory of the study. Chapter 2 primarily explores EPT, which is underpins PE.

Chapter 3 presents an overview of the national and international empirical literature on PTSD, as well as the interventions for the psychological treatment thereof with an emphasis on

online PE. The chapter also highlights literature relevant to, or pertaining to the South African context, and more specifically, student populations.

Chapter 4 describes the methodology and research design which was used to investigate the aim of the study, as well as the hypothesis underpinning it. The aim of the study is introduced, after which an overview of the chosen methodology is provided. The latter half of the chapter provides a description of the chosen method of data analysis used in the study, as well as the rationale behind doing so.

Chapter 5 provides an overview of the intervention phase of the study, i.e., online PE. The recruitment process, inclusion and exclusion criteria, sample size and rationale behind it are discussed. This is followed by a description of the assessment measures used during the intervention stage. An overview of the sessions is then provided, and the chapter concludes with issues related to treatment fidelity, as well as important ethical considerations.

Chapter 6 provides an idiographic overview of the three trauma survivors who participated in the study. Case formulations and conceptualizations are also presented for each one of the three participants by using EPT.

Chapter 7 presents the results of online PE with university students. The chapter presents a discussion of idiographic visual inspection and descriptive analysis. The chapter concludes with an overview of the online PE fidelity ratings.

Chapter 8 reflects on the study limitations, implications, and presents conclusions.

1.9 Chapter summary

Chapter 1 introduced the study by describing the research context, problem statement and rationale of the study, as well as the broad aim of the study, which is to investigate the effectiveness and feasibility of online prolonged exposure therapy for traumatic stress among university students within a South African setting.

The following chapter will briefly describe the trauma theories of PTSD, and an in-depth discussion of EPT will be provided.

Chapter 2

Emotional Processing Theory

Chapter Overview

Chapter 2 presents a brief history of psychological theories of PTSD. EPT, which is the theoretical framework underpinning the study, is then discussed. Treatment challenges and limitations are then discussed, and the chapter concludes by making a theoretical prediction of the expected outcome of the intervention based on EPT.

2.1 Brief history of psychological theories of PTSD

Prior to the latter part of the 19th century, it was believed that the origin of trauma symptoms was physiological in nature. However, while investigating the relationship between trauma and mental illness, French neurologist, Jean Martin Charcot (1825-1893) who is known for his studies on hysteria among traumatized women, discovered that these symptoms were psychological, and not merely physiological (Ringel & Brandell, 2012). Charcot's work also gave rise to the notion of dissociation, which was formerly described as a "hypnotic state" induced by a traumatic event (Ringel & Brandell, 2012, p.1).

Pierre Janet (1859-1947) was a successor of Charcot's studies of dissociative symptoms of traumatized individuals. He conducted studies during which he investigated the impact of an individual's traumatic experiences on their personality development and behaviour. By doing so, he recognized that an individual's appraisals of a traumatic event influenced their affective state after such event, and that procedures, such as reexperiencing, could alleviate trauma symptoms (Ringel & Brandell, 2012).

Sigmund Freud's (1856-1939) psychoanalytic theory dominated trauma research for the latter part of the 19th century and early in the 20th century. While Janet referred to hysteria as "dissociation", Freud, along with Josef Breuer (1842-1925), Austrian physician and physiologist, termed it "hypnoid hysteria." Most of Freud's research focused on the exploration

of the sexual lives of women. His work became “a study of the internal vicissitudes of fantasy and desire, dissociated from the reality of experience” (Herman, 1992, p. 14). It was during these studies that he believed to have found a correlation between sexually abused women and hysterical behaviour, i.e., the seduction theory (Ringel & Brandell, 2012). Freud later abandoned the seduction theory and shifted his focus to trauma and hysteria studies, and their association with the unconscious (Ringel & Brandell, 2012).

These findings, as well as other discoveries, such as the link between trauma and memory, as well as attention, paved the way for the development of several psychological theories of trauma, and more specifically, PTSD (Brewin & Holmes, 2003).

Early trauma theories include Horowitz’s *stress response theory*, which had its roots in psychodynamics. Stress response theory was fundamental in understanding trauma, and specifically how the memory of a stressful event tends to be reexperienced by an individual in an involuntary and uncontrollable fashion, as well as how avoidance serves as a psychological defence mechanism (Brewin & Holmes, 2003; Horowitz, 1976).

Furthermore, *theory of shattered assumptions* posits that individuals’ worldviews are negatively impacted when they experience a traumatic event, and, as such, they no longer perceive the world as benevolent and predictable, or themselves as competent and invulnerable (Edmondson, et al., 2011). According to this theory, the anxiety and physiological reactivity that are characteristic of PTSD, are consequences of a state of “defencelessness, terrifying, and confusing awareness of personal vulnerability” (Edmondson, et al., 2011, p.2).

Brewin & Holmes (2003) highlight *information processing theory* as another important early trauma theory which influenced modern theorists. This theory postulates that psychopathology is the result of erroneous processing of a traumatic event. It is similar to social-cognitive theories in that it emphasizes the need for new and correct information about

the traumatic event to be integrated within memory system. (Brewin & Holmes, 2003; Lang, 1977).

Modern psychological theories of PTSD include *dual representation theory* which proposes that symptoms of PTSD are attributable to memory processes present after a traumatic event. The theory highlights two memory systems that are at play during memory formation, namely the verbally accessible memory system (VAM) and the situationally accessible memory system (SAM) (Brewin & Holmes, 2003). VAM contains information that was consciously processed and that can be deliberately retrieved. It contains some sensory information, information about emotional and physical reactions, and the personal meaning of the event. SAM, on the other hand, contains sensory information which was unconsciously processed. Thus, it cannot be accessed deliberately, nor is it easily altered or changed. This gives rise to PTSD symptoms such as flashbacks or nightmares (Brewin & Holmes, 2003).

Ehlers and Clark's cognitive model suggests that PTSD is developed when a traumatic event and its consequences is processed in a way that causes a sense of serious current threat (Ehlers & Clark, 2000). The model proposes that this sense of current threat is caused by two processes. Firstly, the individual's appraisals of the trauma and its consequence. Secondly, the nature of the individual's memory of the trauma and how it relates to existing biographical memories (Ehlers & Clark, 2000).

Currently, more recent theories, such as the *Ehlers and Clark's cognitive model* continues to be popular amongst PTSD researchers (Ehlers, Hackmann & Fennel, 2005).

2.2 Emotional Processing Theory

Emotional Processing Theory (EPT) will be used as the theoretical framework underpinning this research, as well as to guide and conceptualize interventions. EPT has formed the conceptualization of anxiety and trauma related disorders, as well as the effective treatment of these disorders (Rauch & Foa, 2006).

EPT is based on Lang's bioinformational theory of fear (Lang, 1977). In this theory, fear is represented as a pathological emotional structure which is present after an individual has experienced a traumatic event (Rauch & Foa, 2006). According to Lang (1977) this structure is comprised of three components, namely information about the feared stimulus; information about the verbal, physiological and overt behavioural responses; and the interpretive meaning of the feared stimulus and responses. These three components, i.e., the fear structure, serve as a programme for escaping feared situations (Lang, 1977). This tendency to escape feared situations, i.e., avoidance, maintains PTSD (Foa, Steketee & Rothbaum, 1989).

2.3 Emotional Processing Theory: Fear Structure of PTSD

As previously mentioned, Foa, Steketee, and Rothbaum (1989) posit that three components make up the pathological fear structure: excessive stimulus, response, and pathological meaning elements. For example, someone who survives a dog attack could, theoretically, develop a fear-response to all dogs or stimuli (e.g., hearing a dog barking in the distance) that resemble the dog that attacked them.

Furthermore, two cognitive conditions underpin the fear structure: a) erroneous beliefs about the safety in the world, e.g., "the world is completely dangerous"; and b) erroneous beliefs about one's self-efficacy and competence, e.g., "I am going crazy" (Rauch & Foa, 2006, p.62).

2.4 Emotional Processing Theory: Modifying the fear structure

For some individuals, natural recovery takes place after a trauma. This happens as "pathological elements are corrected through engagement in daily activities that disconfirm them" (Rauch & Foa, 2006, p. 62). However, some individuals do not recover naturally, and require assistance in the form of psychological treatment as it helps with emotional processing.

Modification of pathological fear structures is the crux of emotional processing (Foa & Kozak, 1986; Rauch & Foa, 2006). This requires two necessary conditions. Firstly, the fear

structure must be activated by engaging with fear provoking information (through in-vivo exposure and imaginal exposure). Secondly, new information must be incorporated into the fear structure and be retrievable (Foa & Kozak, 1986). It is important to note that the incorporation of the new information does not replace the existing, albeit erroneous, information but rather modifies it.

Promoting emotional engagement with the trauma memories through, for example, imaginal and in vivo exposure, is essential as PTSD is maintained through avoidance, as well as erroneous beliefs (Foa et al., 2019). Repeated revisiting of the trauma memory promotes organization of the trauma narrative, discrimination between remembering and re-encountering, and differentiation of the trauma from similar safe events e.g., disconfirming that the world is a dangerous place. By doing so, erroneous cognitions, as well as associated distress underlying PTSD are modified (Foa et al., 2019).

EPT recommends the use of both imaginal and in vivo exposure techniques for the treatment of PTSD as earlier research has found that both are necessary for greater treatment outcomes (Foa, Steketee, Turner, & Fischer, 1980).

2.4.1 Habituation

Habituation is said to have taken place when fear elicited by a stimulus has decreased by engaging with processes such as imaginal and in-vivo exposure (Benito & Walther, 2015; Foa & Rothbaum, 1998). Habituation allows trauma survivors realize that the trauma memory is not as threatening as they perceived it to be before the start of treatment (Foa & Kozak, 1986). Therefore, through the process of habituation, trauma survivors are able to regain their lives and feel empowered as they learn that fear does not stay forever, nor are they incompetent (Foa et al., 2019).

2.5 Treatment challenges and limitations

Research has also been conducted around limitations of EPT. According to Foa and Kozak (1986) there are four factors that can hinder a client's emotional processing during therapy. Firstly, cognitive avoidance through distraction strategies such as reporting a distorted image, for example, will prevent emotional processing and prevent modification of the trauma memory (Foa & Kozak, 1986). Secondly, severe depression has been found to hinder effective emotional processing. This is attributed to the client's difficulties related to self-efficacy and affective states of hopelessness, and cognitive bias which may prevent encoding corrective information that can weakening the stimulus response links in the fear structure (Foa & Kozak, 1986). Foa and Kozak (1986) identify a third factor which may complicate treatment, namely overvalued ideation. This refers to resistance to encoding corrective and rational information by justifying erroneous thoughts (Foa, 1979). Lastly, if the fear structure is not sufficiently activated, i.e., under-engagement and over-engagement in treatment, habituation can be hindered, and the overall outcome of treatment will be impacted (Rauch & Foa, 2006).

Habituation is emphasized as one of the primary underlying processes of successful exposure therapy. EPT posits that both within-session and between-session habituation of fear are necessary for long-term symptom relief. However, despite its face validity, these premises are not strongly reported and support for it has been inconsistent. As a result, more recent theories of exposure therapy have shifted their focus to extinction research that highlights the importance of inhibitory regulation, or the formation of safety learning, as the primary underlying process. Thus, instead of focusing on the weakening of the original fear memories, emphasis is placed on the establishment of new memories as these are said to lead to the extinction of fear (Craske, Liao, Brown & Vervliet, 2012; Baker, et al., 2010). This may have important implications for the practice of exposure therapy.

An important consideration is that none of these theories were developed with teletherapy in mind. Therefore, in addition to the abovementioned challenges and limitations, additional potential challenges and limitations should be considered in light of the online element of the study. Although teletherapy offers several advantages over face-to-face therapy, it is of utmost importance to consider its disadvantages too.

Some individuals (clients and therapists) prefer face-to-face therapy, especially those who have limited experience with teletherapy, or low computer literacy (Kaltenbach et al., 2021). Thus, teletherapy may not be suitable to everyone and might lead to exclusion, for examples to individuals who are not computer literate. Furthermore, when engaging in teletherapy, ensuring privacy and confidentiality is of utmost importance as online communication may be intercepted and may lead to issues such as stigmatization (Kaltenbach et al., 2021). It is also important to consider that clients engaging in teletherapy in their own homes may not have access to a private space, which furthermore poses a threat to confidentiality (Kaltenbach et al., 2021). Most platforms for teletherapy only show the face and other body of individuals, and as a result, it may be more challenging to observe and react to the others' body language (Kaltenbach et al., 2021). Contrary to face-to-face therapy, connection difficulties and transmission issues, such as delays in audio or video may hinder video calls and lead to the loss of important information and important cues, e.g., body language (Kaltenbach et al., 2021).

2.6 Theoretical prediction

According to the American Psychological Association (2013) PTSD is characterized by maladaptive functioning in individuals who have experienced or witnessed a traumatic event.

As previously mentioned, PTSD is maintained due to avoidance and erroneous beliefs about oneself and the world (Foa et al., 2019; Kozak, Foa, & Steketee, 1988). EPT posits that the activation and modification of the fear structure is necessary in order to ameliorate PTSD symptoms. It is therefore hypothesized that the participants of the research study should show

a gradual reduction of PTSD symptoms when engaging in emotional processing during the intervention and maintain treatment gains at least three-months post-intervention. Furthermore, positive outcomes should also be observed for the secondary outcome of depression. Due to the demonstrated efficacy of teletherapy, it is hypothesized that the intervention will effectively alleviate symptoms of traumatic stress amongst university students, as well as demonstrate feasibility.

Chapter summary

First, Chapter 2 presented a brief history of psychological theories of PTSD, including early trauma theories such as Horowitz's *stress response theory*, *theory of shattered assumptions*, *information processing theory* and modern psychological theories of PTSD, such as *Ehlers and Clark's cognitive model* and *dual representation theory*. EPT was then discussed as it is the theory underpinning the study. Treatment challenges and limitations were discussed, and the chapter concluded with a theoretical prediction of the expected outcome of the intervention based on EPT, i.e., the intervention will effectively alleviate symptoms of traumatic stress amongst university students, as well as demonstrate feasibility.

Chapter 3

Literature review

Chapter overview

A literature review was undertaken to examine the psychological treatment of PTSD with an emphasis on online PE. Another important aspect of the literature review was examining literature relevant to, or pertaining to the South African context, and more specifically, student populations.

The following key words were included in the search criteria: “PTSD”, “traumatic stress”, “exposure therapy”, “prolonged exposure therapy”, “online prolonged exposure therapy”, and “trauma amongst South African students”. The literature was reviewed by the researcher, which resulted in the selection of those appearing in this thesis.

Articles were selected on the basis that they were deemed reliable, i.e., empirical in nature, peer-reviewed, and relevant to the research.

High-impact journals were searched on databases that regularly publish research on PTSD and included: SA Journal of Psychology and Journal of Traumatic Stress. Other searches included Google Scholar, SAGE publications, and internet searches.

3.1 Brief history of psychological trauma

PTSD as a diagnostic construct is relatively still new within the nomenclature of psychiatry, yet it also has a broad and tumultuous history (Eagle, 2002). The precursors of the current diagnosis largely arose from war-related conditions. “PTSD has its origins in observations of individual's responses to transgressions of the social and natural order, transgressions which in most instances have political implications” (Eagle, 2002, p. 37; Green, 1994).

The term “shell shock” was coined by soldiers during World War I in the early 1900’s and was thought to be a condition which resulted from brain trauma caused by exploding shells (Sadock & Sadock, 2003). “Operational fatigue,” “battle exhaustion,” or “combat neurosis”

were other terms used interchangeably to describe the symptoms of, amongst others, survivors of the Nazi concentration camps, World War II veterans, and survivors of the atomic bombings in Japan (Sadock & Sadock, 2003).

The high prevalence of psychiatric comorbidity amongst Vietnam War veterans led to the formalization of the current diagnosis of PTSD and consequently, the diagnosis of PTSD is associated with the legacy of the Vietnam War (Eagle, 2002; Crocq & Crocq, 2000; Green, 1994). Symptomology amongst Vietnam War veterans included fatigue, weakness, sleep difficulties, headaches, other physical pain, memory impairment, attention and concentration difficulty, nausea and other gastro-intestinal symptoms, anxiety, depression, and irritability (Eagle, 2002).

In 1980, PTSD was formally recognised as a psychiatric disorder and was introduced as such in the third edition of the Diagnostic and Statistical Manual of Mental Disorders, i.e., DSM-III. At the time, it was defined and conceptualized as a disorder characterized by traumatic memory, as well as intrusion symptoms such as nightmares, intrusive recollections, and flashbacks (American Psychological Association, 1980).

When officially introduced in the third edition of the DSM, PTSD was outlined as having 17 symptoms which were divided into three different clusters. Since the inception of PTSD in 1980, it has varied across editions of the DSM. The DSM-5 currently identifies 20 different symptoms of PTSD which are divided into four clusters (American Psychological Association, 2013).

The diagnostic criteria for PTSD have also been refined in subsequent editions of The International Classification of Mental and Behavioral Disorders (ICD) and has been a popular topic of discussion amongst researchers. The DSM-5 has a broad view of PTSD, and can capture individuals with significant, as well as below threshold PTSD. The latest version of the ICD, the ICD-11, has tightened the criteria for PTSD in attempt to avoid over diagnosing the

condition (Stein et al., 2014). However, this change resulted in a narrower view and may, as a result, fail to diagnose individuals that might be just below the diagnostic threshold (Wisco, et al., 2017).

3.2 Clinical definition of PTSD

PTSD is a mental health disorder that may develop after a traumatic event on the occasion that an individual has directly experienced or witnessed trauma, learned about the violent traumatic death of a close friend or family member, or experienced repeated exposure to traumatic events (American Psychological Association, 2013).

The most recent editions of the DSM-5 and ICD-11 are identified as the most widely used diagnostic manuals (Miao, Chen, Wi, Tao & Lu, 2018). Currently, in the most recent version of the DSM-5, 20 different symptoms are identified and are divided into four clusters (Miao et al., 2018).

In summary, the following symptoms need to be present to make a diagnosis of PTSD: one avoidance symptom, two symptoms related to negative alterations in cognition and mood, and two arousal and reactivity symptoms. These symptoms must have been persisting for at least one month after the trauma and must have impacted negatively on the individual's overall functioning (Miao et al., 2018).

Individuals with PTSD experience intrusive thoughts, and often relive the traumatic event in the form of involuntary memories, distressing dreams, or flashbacks (Iribarren et al., 2005). The presence of intrusive thoughts and flashbacks is a salient feature of the psychological sequelae of PTSD and sets it apart from other disorders (Brewin & Holmes, 2003). Individuals with PTSD also present with behavioural and cognitive strategies of avoidance to internal (thoughts or emotions) and external (people, places, and activities) stimuli (American Psychological Association, 2013). Noticeable alterations in cognition (blame of self, others, or the world) and mood (fear, anger, guilt, or shame) is another common symptom associated with

PTSD (American Psychological Association, 2013). Furthermore, individuals with PTSD may experience alterations in arousal and reactivity, such as being irritable, having anger outbursts, behaving recklessly, or having trouble sleeping (American Psychological Association, 2013).

Research indicates that there are ongoing debates related to the DSM-5 structure of PTSD. Friedman (2013) describes the process that resulted in the changes from the diagnostic criteria for PTSD changing from the DSM-IV to the DSM-5 as “empirically based and rigorous.” Hence, not only are these debates relevant, but they also demonstrate the continuous investment and study of psychological trauma and PTSD.

Friedman (2013) highlights the issue surrounding the broader view of the DSM-5 criteria compared to the ICD-11 PTSD criteria and argues in favour of a broader criteria for PTSD as it covers the most typical clinical presentations more adequately. Kilpatrick (2013) echoes this view and deems the broader definition of PTSD in DSM-5 as appropriate as it includes clinically significant issues or problems which allows for reliable and accurate diagnosis.

Another interesting debate is around the process which led to PTSD no longer being classified as an anxiety disorder, and the formation of a whole new chapter, Trauma- and Stressor Related Disorders within the DSM-5 (Friedman, 2013; Schnurr, 2013). Kilpatrick (2013) highlights this as advantageous as it recognizes the role of “nurture” and not just “nature.” In essence, the role of nurture, is highlighted as a contributing factor to psychological disorders such as PTSD. Thus, PTSD is seen as a causation by an interaction between nature, for example genetic and biological factors, and nurture, for example psychological risk and protective factors (Kilpatrick, 2013).

Overall, the field of traumatic stress is continuously developing and scholars in the field are engaging the remaining questions, such as Criterion A and the meta-structure of PTSD (Friedman, 2013).

3.3 Prevalence of PTSD

A comprehensive global survey conducted by the World Mental Health Surveys ($n = 68\,894$) found that 70% of populations in the 24 countries studied reported exposure to a traumatic event, with exposure ranging from 29% to 83% (Benjet et al., 2016). Thus, it is evident that trauma exposure is common globally. The trauma types with highest proportions of this burden were rape (13.1%), other sexual assault (15.1%), being stalked (9.8%), and unexpected death of a loved one (11.6%) (Kessler et al., 2017).

Research suggests that most South Africans experience trauma, or traumas, in their lifetimes (Williams et al., 2007). A recent South African study ($n = 4315$) indicated that the most common traumas were the unexpected death of a loved one and witnessing a trauma occurring to another individual (Atwoli et al., 2013). The study furthermore indicated that socio-demographic factors were not related to PTSD risk (Atwoli et al., 2013).

Crime at South African universities was a common problem, and that the most prevalent crimes included theft, burglary, sexual assaults, and gender-based violence among student populations (Hoffmann, 2002).

Research conducted by McGowan and Kagee (2013) at a large residential university in South Africa, indicated that 90% of the sample reported at least one traumatic event in their lifetime. Almost 50% of respondents indicated that they had experienced more than one traumatic event, and some respondents reported as many as seven traumatic events (McGowan & Kagee, 2013). This correlates with international data which suggests that traumatic events are prevalent amongst American student populations, with estimates as high as 84% (Cusack et al., 2019).

Considering these findings, many South African university students are at risk of developing PTSD, which is commonly associated with comorbid conditions such as depression, anxiety, and suicidal ideation (Bantjes et al., 2016). However, despite alarming

statistics, the mental health gap among university students is significant and many researchers highlight the limited access to mental healthcare services on campuses (Bantjes et al., 2020; Brown, 2018). A study (n = 1402) revealed that only 18,1% of first-year universities students sought mental healthcare, and that only 28,9% of students with mental disorders received treatment (Bantjes et al., 2020). This may lead to a range of adverse outcomes, such as role impairment, academic difficulties, and suicidal behaviour (Bantjes et al., 2020).

3.4 Trauma-focused treatment for PTSD

PTSD is a debilitating disorder that can lead to significant problems, such as disturbances in individual and family functioning, as well as medical, financial, and social difficulties (Miao et al., 2018). Fortunately, there are many effective psychological treatments available for PTSD (Watkins, Sprang, & Rothbaum, 2018). Research indicates that most interventions lead to a decrease in PTSD symptoms or a total loss of diagnosis, a decrease in symptoms related to comorbid conditions, such as depression, improved quality of life, and other positive outcomes (Miao et al., 2018). Trauma-focused therapies are first-line treatment options and include, amongst other, cognitive behavioural therapy (CBT), cognitive processing therapy (CPT), cognitive therapy (CT), exposure-based therapies, such as prolonged exposure therapy (PE), and brief eclectic psychotherapy (Miao et al., 2018).

3.5 Prolonged exposure therapy for PTSD

PE is an evidence-based trauma-focused therapy for PTSD (Foa et al., 2019). The aim of PE is to facilitate emotional processing to help trauma survivors to disconfirm the erroneous beliefs in the fear structure (Foa et al., 2019). PE consists of an 8-15 session manualized exposure-based trauma therapy and includes four primary components (Peterson et al., 2019).

Imaginal exposure is a process during which the client visualizes and recounts trauma events aloud. For example, this allows for the identification and processing of the trauma

memory as clients may present with intrusive thoughts and vivid nightmares (Peterson et al., 2019).

In-vivo exposure entails real life exposure to safe situations, activities, places, and objects that the client is avoiding. The rationale behind this is for the client to realize that memories or reminders, as well as situations related to the trauma is not as threatening as they seem to be, giving them a sense of control and personal competence. This process is referred to as “habituation” i.e., the decrease of anxiety (Peterson et al., 2019).

Breathing retraining focuses on calm breathing techniques. Breathing retraining aims to provide the client with a useful skill to reduce general anxiety that may interfere with daily functioning. It can be used in sessions while engaging in imaginal exposure, or while engaging in in vivo exposure when the client might experience distressing arousal symptoms or strong emotions (Foa et al., 2019).

Education about common post trauma reactions is provided to the client during the intervention. Psychoeducation in terms of common post-trauma reactions aims to validate the client’s experience (Foa et al., 2019).

The rationale behind these four components are as follows. After a traumatic event an individual may perceive the world as an entirely unsafe place and view themselves as unable to cope. Therefore, they avoid certain situations, or memories linked to the event, which are referred to as triggers. However, by doing so, the individual’s anxiety is maintained, hindering processing and healing after a traumatic event (Peterson et al., 2019). The aim of imaginal exposure and in-vivo exposure is therefore to decrease anxiety by helping the client realize that these memories or reminders, as well as situations related to the trauma is not as threatening as they seem to be, giving them a sense of control and personal competence (Foa et al., 2019).

3.5.1 PE as a first-line treatment for PTSD

As mentioned before, PE, a form of CBT, is a first line trauma therapy for PTSD (Miao et al., 2018; Foa et al., 2019). It has been recognized and recommended as such by many major PTSD treatment guidelines, such as the American Psychological Association (APA), the International Society for Traumatic Stress Studies (ISTSS), and the United Kingdom's National Institute for Health and Care Excellence (NICE) (Isserlin & Zerach, 2008).

The effectiveness and efficacy of PE has been assessed in various contexts (i.e., Israel, Poland, and Japan), as well as against a variety of comorbid conditions (de Bont et al., 2013; Ghafoori, 2018). PE has become known as an intervention that successfully reduces the symptoms associated with PTSD whilst instilling confidence in trauma survivors. By doing so, various aspects of individuals' lives are improved, and they are able to cope better overall (Bryant, Friedman, Spiegel, Ursano & Strain, 2011).

Although PE has been proven to be an effective treatment for PTSD, research on its effectiveness in LMICs are very limited (Booyesen, 2021; Booyesen & Kagee, 2020). This indicates that further research is needed.

3.5.2 Recent developments in PE

As the world evolves, the development of psychological interventions, such as PE, is of utmost importance as it allows better and more inclusive ways to support individuals. One way in which PE has developed and adapted to do just that, is by transitioning to online platforms to provide psychological treatment, i.e., teletherapy. The growing interest and efficacy of teletherapy has led to rapid expansions in the availability thereof (Wells et al., 2020). Secondly, the use of massed-PE has become increasingly studied, in particular as a response to dropout rates found in standard PE treatment. While standard PE only occurs once weekly, massed PE delivers therapy daily, and has shown improved treatment outcomes amongst certain populations (Zwetzig, Koch, Blount, Graham, & Peterson, 2021).

In response to the dropout rates found in standard PE treatment, researchers started examining the effectiveness of massed PE, in which clients attend multiple sessions in a short period of time as opposed to the weekly sessions of standard PE treatment (e.g., Foa et al., 2018; Hendriks et al., 2018). Promising results have led to an increase in popularity in massed PE (Foa et al., 2018; Hendriks et al., 2018; Zwetzig et al., 2021).

One such study, which was conducted in America, investigated the success of using massed PE to treat two firefighters who presented with PTSD. Results showed a decrease in symptoms for both individuals, and it is believed that similar results would be seen in other populations (Zwetzig et al., 2021). The study employed four measures, which were administered at baseline, at the end of treatment, as well as during a one-month follow-up. First, the Clinician Administered PTSD Scale for DSM-5 (CAPS-5). At baseline, for example, the first participant had a score of 47, which suggested that he met the full criteria for PTSD. This was consistent with his score on the PTSD Checklist for DSM-5 (PCL-5) which was 62. On the Patient Health Questionnaire-9 (PHQ-9), the first participant had a score of 22, which indicated severe depressive symptoms. Lastly, the participant had a score of 2 on the Depressive Symptom Inventory-Suicidality Subscale (DSI-SS) (Zwetzig et al., 2021).

Post-intervention, the participant's PCL-5 score, 21, fell below-threshold for PTSD and his score of 6 on the PHQ-9 indicated mild depression. Furthermore, he no longer presented with suicidal ideation, as reflected by his DSI-SS score of 0.

3.5.2.1 Online PE

In response to the COVID-19 pandemic, public health guidelines for physical distancing reduce access to face-to-face mental health care. By transitioning to online communication, many health care providers have adapted to pandemic constraints, allowing clients and health care service providers to meet synchronously through a video network such as Zoom, InTouch, or Skype (Wells et al., 2020).

Additionally, with the rise in prevalence of mental illnesses, especially in resource-scarce countries like South Africa, comes an increasing demand for mental health services in LMICs (Acharibasam & Wynn, 2018). Teletherapy has been found to be a feasible method to offer psychological services during the COVID-19 pandemic and might address challenges, such as inequality in access to these services (Acharibasam & Wynn, 2018; Situmorang, 2020).

With the high prevalence of trauma amongst South African university students, it is also important to consider the role of teletherapy as a form of intervention to respond to the mental health needs of students. Richards (2009) argues that the onus lies on universities to develop suitable interventions to do so. It is furthermore highlighted that the use of the internet and Information and Communication Technologies (ICT) brings many distinct advantages, especially because students' use of technology and online platforms are an integral part of how they communicate (Richards, 2009). Research conducted in South Africa amongst university students, revealed that many students prefer engaging in teletherapy, rather than attending face-to-face sessions (Goldschmidt et al., 2021). Evans (2018) highlights how teletherapy has the potential to reduce the stigma of reaching out for help, and, by doing so, increase accessibility to mental health services. However, once again, the shortage of literature within a South African context pertaining to this issue is stressed (Goldschmidt et al., 2021).

Chapter summary

Chapter 3 provided a literature review on the interventions, both old and modern, for the psychological treatment of PTSD. An emphasis was placed on online PE, and its effectiveness and feasibility. Another important aspect of the literature review was examining literature relevant to, or pertaining to the South African context, and more specifically, student populations. The limited data on PE in general, as well as online PE in a South African context

was highlighted as it suggests that further research in these areas is needed, furthermore supporting the relevance of the study.

Chapter 4

Methodology and design

Chapter overview

This chapter describes the methodology and research design used to investigate the aim of the study, and the hypotheses underpinning it. First, the aim of the study is introduced, followed by an overview of the chosen methodology. This includes a discussion of the recruitment of participants, inclusion and exclusion criteria, and the sample size in relation to the chosen methodology, i.e., SCED designs. The chapter concludes with a description of the chosen method of data analysis used in the study, as well as the rationale behind doing so.

4.1 Aim of the study

The central aim of the study was to investigate the effectiveness and feasibility of online prolonged exposure therapy for PTSD among university students within a South African setting.

4.2 Overview of Single-Case Experimental Design (SCED)

The study employed Single-Case Experimental Design (SCED) as basis for its research design. SCED has a long history and dates to the early works of behaviourists and experimental researchers like Watson (1916) and Skinner (1953) (Kazdin, 2019; Richards, Taylor, Ramasamy & Richards, 1999). It has also been used in studies conducted by prominent scholars in the field of psychology such as David H. Barlow and Alan Kazdin. These scholars have argued that SCED and similar small sample interventions provide an alternative to large scale group-based studies. A distinct benefit of SCED is that it has an idiographic focus and can provide more specific intervention data between dependent and independent variables (Kazdin, 2019).

Throughout the years, SCED has had different names, and is also known as single-subject; case-series design; and interrupted time series (Barlow & Hersen, 1984; Kratochwill & Levin, 2014; Richards et al., 1999).

Today, SCED is still frequently used in the behavioural sciences and its popularity has been highlighted by researchers (Kazdin, 2019). A study by Shadish and Sullivan (2011), for example, found that that 44% of psychological and educational intervention studies employed SCED during the year 2008. Kazdin (2019) furthermore posits that the use of SCED has expanded considerably in recent years and are frequently used in interventions which fall under the umbrella of cognitive-behavioural techniques, such as PE.

It is important to make mention of the fundamental differences between SCED and case study research. Case study research uses several sources, such as interviews, observations, and archival data, to explore and describe a social phenomenon. Thus, it can be a combination of qualitative and quantitative data (Yin, 2013). SCED, on the other hand, relies on assessment instruments and interventions to obtain data, and analysis can either be a traditional visual inspection, statistical models, or a combination. Therefore, SCED is part of the broader tradition of experimental psychology (Barlow, Nock, & Hersen, 2009).

4.3 Features of SCED

SCED makes it possible to draw empirically based inferences about the effectiveness of treatment. The effectiveness of treatment is determined based on the client's symptoms or adaptive functioning over time (Kazdin, 2019). SCED contains four essential features, namely a dependent variable (DV), such as PTSD, an independent variable (IV), such as PE, assessing the causal relationship (i.e., effect) between the DV and IV to determine whether change has taken place, such as a decrease in PTSD symptomology after PE treatment (Kratochwill & Levin, 2014).

4.3.1 Specification of treatment focus

Kazdin (2019) identifies specification of treatment goals, or the symptoms and areas of functioning that are to be altered, as a major requirement of SCED. Thus, it is expected that measures are selected that would reflect potential progress in treatment. The onus lies on the clinician to identify what sort of changes will be indicative of progress, and how these will be measured (Kazdin, 2019). In the present study, the primary outcome was PTSD, therefore, psychometrically reliable, and validated measures were used to observe the necessary symptom change. The psychometric properties of the measures are discussed in a latter part of this chapter.

4.3.2 Continuous assessment

Continuous assessment is an important requirement of SCED and is an important determinant of selection of the different measures (Kazdin, 2019). The measures selected should evaluate progress in treatment and should be administered on different occasions, i.e., before commencement of treatment, as well as continuously over the course of treatment (Kazdin, 2019). This is fundamental as SCED is used to measure a client's symptoms or adaptive functioning over time (Kazdin, 2019). In the present study, measures were administered at baseline, during the commencement of each session, as well as post-intervention.

4.3.3 Separate phases

In SCED, the continuous assessment takes place over the course of different phases (Kazdin, 2019). The first period of assessment takes place pre-treatment and is referred to as the baseline phase. The baseline provides an indication of functioning and symptomology before any intervention has taken place. Throughout the intervention phase, continuous also assessment takes place (Kazdin, 2019).

4.3.4 Stability of performance

It is important that the data collected during the baseline phase is relatively stable, as it is used to predict the client's future responses. This means that there should not be a trend, and relatively little variability or fluctuation should be present (Kazdin, 2019).

In some SCED studies, multiple assessments are administered in a baseline phase to achieve stability of performance. Yet in psychotherapy research, multiple assessments are not necessarily required and not feasible due to ethical considerations and real-world implementation (Frank, Nash, Stone, & Imber, 1963; Kazdin, 2019). Therefore, the current study conducted a single baseline assessment using the following measures:

Patient Health Questionnaire - 9 (PHQ-9): the PHQ is a 9-item self-administered questionnaire that is used to detect depression severity (Kroenke, Spitzer & Williams, 2001). The internal reliability of the PHQ-9 has been found to be excellent ($\alpha = .89$). Test-retest reliability of the PHQ-9 has also been found to be excellent.

Posttraumatic Symptom Scale Interview for DSM-5 (PSSI- 5): PSSI-5 is a 20-item semi-structured interview to make a diagnosis of PTSD. The PSSI-5 demonstrates good internal consistency ($\alpha = .89$) and test-retest reliability ($r = .87$), as well as excellent interrater reliability for the total severity score (intraclass correlation = .98) and interrater agreement for PTSD diagnosis ($\kappa = .84$) (Foa et al., 2016).

PTSD Checklist (PCL-5): the PCL- 5 is a 20-item self-report measure that is used to assess the 20 DSM-5 symptoms of PTSD. The test scores demonstrate good internal consistency ($\alpha = .96$), test-retest reliability ($r = .84$), and convergent and discriminant validity (Bovin et al., 2016).

Implementation measures (IM): this measure is used to determine the Acceptability of Intervention Measure (AIM), Intervention Appropriateness Measure (IAM), and Feasibility

of Intervention Measure (FIM) (Weiner et al., 2017). This measure is linked to the research hypothesis of feasibility.

4.4 Sample size in SCED

SCED are experimental designs aiming at testing the effect of an intervention and usually focuses on smaller samples (Krasny-Pacini & Evans, 2018). The use of smaller samples allows for more detailed observations which allows researchers to investigate demographic, contextual, as well as process orientated data for each participant (Kratochwill & Levin, 2014; Richards et al., 1999).

4.4.1 Recruitment of participants

Participants were recruited from Rhodes University in Grahamstown, Eastern Cape. After obtaining the necessary gatekeeper permission, the study was advertised on one of Rhodes University's online platforms (i.e., TopList email). A total of 13 individuals responded to the email and agreed to the screening invitation. During the interviews, which were conducted via Zoom, the researcher provided prospective participants with important information about the research study, as well as the intervention. Each prospective participant also received an information sheet containing information about the study (see Appendix A), as well as information about teletherapy (see Appendix B).

Individuals were then requested to provide information as stipulated on the Participant Screening Questionnaire. This provided the researcher with biographical information about the interviewed individuals and allowed the researcher to determine whether the individuals meet the inclusion criteria for the study. Those who met the inclusion criteria, were requested to complete two assessments. First, the Posttraumatic Symptom Scale Interview for DSM-5 (PSS-I-5) was used as a semi-structured interview to diagnose or rule out a PTSD diagnosis. Second, the Patient Health Questionnaire-9 (PHQ-9) was administered to determine a comorbid diagnosis of depression, and whenever existing, the severity thereof. Those who did not meet

the inclusion criteria for the study, were referred to the Counselling Centre for psychotherapy sessions.

A total of 5 individuals were selected as participants as they met the inclusion criteria and the diagnostic criteria for PTSD. However, two participants chose to drop out of the study before intervention commenced. One participant reported that she would prefer to focus on her studies for the time being, while the other reported that she would prefer face to face therapy and became a regular participant at the Counselling Centre. The researcher was thus left with three participants who committed to the study and completed the intervention phase. More information about the participants and the interventions will be provided in the following chapter.

4.4.2 Inclusion criteria

As previously mentioned, screening was conducted during the intake interview to determine whether the prospective participants met the inclusion criteria for the study.

For the purpose of the study, participants met the inclusion criteria with the condition that they were South African or non-South African students who were at least 18 years old. Participants must have directly witnessed or experienced a traumatic event at least one month prior to the commencement of treatment. The inclusion criteria furthermore required that participants must be able to speak either Afrikaans or English.

4.4.3 Exclusion criteria

Prospective participants were excluded from the study if they had current comorbid disorders of Schizophrenia and related disorders; Bipolar Mood Disorder; have suffered a Traumatic Brain Injury (TBI) or have any neurodevelopmental disorders; or presented with suicidal or homicidal intent. However, as previously mentioned, these individuals were informed about the services offered by the Counselling Centre and were assisted with applying for services.

4.4.4 Sample size

A sample of 3 participants from Rhodes University was recruited. The small sample is in line with SCED designs, which have an idiographic approach to intervention research (Kazdin, 2019). The study employed a purposive sampling method. This kind of non-probability sampling method targets members of a population who meet particular criteria (Etikan, Musa & Alkassim, 2016). For the study, the criteria are specified by the inclusion and exclusion criteria as mentioned in the previous section.

4.5 SCED Designs

SCED has several core designs that can be used in different settings and for different research purposes and questions. These include A-B-A withdrawal design, multiple baseline design, changing criterion design, and alternating treatment designs (Kratochwill & Levin, 2014; Richards et al., 1999). In the current study a stand ABA Designs was used.

4.5.1 A-B-A design

The ABA design consists of a pre-assessment or baseline phase (A), followed by an intervention phase (B), and finally, a post-assessment phase (A), during which the effectiveness of intervention is demonstrated (Byiers, Reichle, & Symons, 2012).

4.5.1.1 Rationale for using and A-B-A design

According to Barlow and Hersen (1984), the research question informs the selection of a SCED. Thus, based on the research question underpinning this study, the use of an A-B-A design was carefully considered as it would indicate the effectiveness and feasibility of online PE as stipulated by the research hypotheses: a) Online PE will improve symptoms of traumatic stress and depression amongst university students in South Africa, and b) Online PE will be perceived as feasible to implement on an online platform among university students seeking trauma therapy for symptoms of traumatic stress and depression.

4.6 Online PE for PTSD

The use of online platforms to provide evidence-based therapy (EBT), such as PE, for PTSD has ensured continued access to first-line PTSD treatment (Wells et al., 2020). Furthermore, evidence supporting online PE has grown significantly in the past decade. Research has shown that online PE is an effective and feasible way to deliver mental health care services (Franklin et al., 2017; Situmorang, 2020; Wells et al., 2020).

Limited research has been done on online PE, and telepsychology in general, within the South African context. However, the limited research indicates encouraging results (Evans, 2014).

4.7 Data analysis

Visual inspection was used to analyse the data obtained in the intervention phase of the study. To supplement visual inspection, descriptive statistical analysis of the SCED was also used to report on measures of central tendency, and standard deviation.

4.7.1 Visual analysis

Visual analysis is often used in SCED to analyse single case data and visual examination of the graphed data allows the researcher to determine whether an intervention is reliable and consistent (Kazdin, 2019). It serves as a systematic approach to analyse and understand the data of each participant (Lane & Gast, 2014). Visual analysis is beneficial in that it enables the researcher to establish good end-state functioning of participants at the end of treatment based on the graphical representation of clinical measures (Lane & Gast, 2014).

For the purpose of the study, visual inspection was used to assess three key features of the data obtained from each participant. These included the level or mean performance in a condition (i.e., the baseline or intervention), the trend of the data or the direction in which the data is progressing (as indicated by the PCL-5 which was administered before each session),

and lastly, the variability or stability of the data (Kratochwill & Levin, 2014; Lane & Gast, 2014).

4.7.2 Descriptive statistical analysis

Descriptive statistics provides a general summary of the sample being studied by using tools such as frequency distribution tables, percentages, and other measures of central tendency, such as the mean (Kaliyadan & Kulkarni, 2019). In the present study, descriptive statistics were used to illustrate the mean scores and standard deviations for the participants' PSSI-5 scores throughout the intervention stage.

Chapter summary

The chapter presented the aim of the study, as well as an overview of SCED, and A-B-A designs in particular. The assessment measures used in the study was then introduced, and a brief overview of their psychometric properties were discussed. The chapter furthermore discussed online PE and highlighted how there is limited data on online PE within the South African context. Finally, the chapter concluded with a description of the chosen method of data analysis used in the study, i.e., visual analysis and descriptive statistical analysis, as well as the rationale behind doing so.

Chapter 5

Intervention

Chapter overview

This chapter provides an overview of the intervention phase of the study, i.e., online PE. First, the recruitment process is described, followed by a discussion of the inclusion and exclusion criteria. The sample size and rationale behind it is also discussed. This is followed by a description of the assessment measures used during the intervention stage. An overview of the sessions is then provided. The chapter concludes with issues related to treatment fidelity, and ethical considerations.

5.1 Assessment measures

According to Foa & Meadows (1997), the selection of valid and reliable assessment measures is an integral part of intervention research. With this in mind, the study employed a variety of valid and reliable assessment measures which were administered at different phases of the study, thus serving as different data points. These included the PSS-I-5, PHQ-9, and PCL-5.

5.1.1 Participant Screening Questionnaire

The Participant Screening Questionnaire was completed by prospective participants and explicitly asked questions pertaining to the inclusion and exclusion criteria. Thus, it was used to ascertain their eligibility for the study. For example, prospective participants were asked if they had either witnessed or directly experienced a traumatic event at least one month prior to the day of the screening. See Appendix C.

5.1.2 PSSI-5

The PSSI-5 was administered during the baseline assessment to determine whether a prospective participant met the diagnostic criteria for PTSD, as well as the severity thereof as indicated by the raw score. This is in line with the chosen research design, i.e., A-B-A designs

which requires a baseline assessment to establish a reference point in terms of functioning and symptomology from which to monitor the effectiveness of the intervention (Kazdin, 2019). The PSSI-5 was once again administered post-assessment to determine the effectiveness of intervention. See Appendix D.

5.1.3 PHQ-9

PTSD is commonly associated with comorbid conditions such as depression, anxiety, and suicidal ideation (Bantjes et al., 2016). Therefore, the PHQ-9 was administered to prospective participants during the baseline phase to detect depression, and the severity thereof (Kroenke et al., 2001). The PHQ-9 was also administered during the post-assessment phase to determine whether participants' depression symptoms have improved. See Appendix E.

5.1.4 PCL-5

The PCL-5 was mainly used during the intervention phase where multiple observations were made. It was administered by the researcher before each session. It allowed the researcher to determine whether PTSD symptoms improved from one session to the other. The PCL-5 has been validated in a South African context (Kagee, Bantjes, Saal & Sterley, 2021). See Appendix F.

5.2 Intervention

The three selected participants each attended 8 online PE sessions during the intervention phase. Before each session during the intervention phase, participants completed the PCL-5 to monitor symptoms of traumatic stress.

5.2.1 Overview of online PE

The treatment schedule consisted of weekly sessions which were between 60 and 90 minutes long. Sessions were conducted via Zoom and were audiotaped for the participants to review as part of homework each week.

5.2.1.1 Session 1

During the first session, an overview of the treatment program and the general rationale for PE was discussed with each participant. Thereafter, information pertaining to the trauma was gathered from the participants, using the Trauma Interview. The Trauma Interview is a standard PE trauma interview and is provided in the PE Manual. The session ended with the introduction of breathing retraining, which is a helpful calming or relaxation technique. The participants were then allocated homework which included reviewing the treatment rationale, listening to the audiotape of the session, and practicing breathing retraining daily.

5.2.1.2 Session 2

During the second session, the participants were encouraged to talk in detail about the trauma that had occurred as well as its effects. The rationale for in-vivo exposure was then presented to the participants and they were encouraged to ask questions. Then, a hierarchy of situations or activities being avoided was constructed. The participants began confronting these situations for homework, i.e., in-vivo exposure. The participants were furthermore encouraged to practice breathing exercises, listening to the audiotape, and reading an informational document provided about common reactions to trauma.

5.2.1.3 Session 3

The third session began with a homework review. Following this, the rationale for imaginal exposure was discussed with the participants and thereafter about 45 to 60 minutes were spent on the participants' first imaginal revisiting of the trauma. The participants were supported while doing this by frequently "checking-in" and by encouraging them to practice breathing techniques when they became distressed. During the in-vivo exposure, participants were also asked to rate SUDs levels. This was followed by 15 to 20 minutes of emotional processing which aimed to foster the processing of thoughts and feelings associated with the trauma. The participants were then once again allocated homework which included listening to the

audiotape of the imaginal exposure on a daily basis, listening to the session audiotape once, and continuing with in-vivo exposure.

5.2.1.4 Intermediate sessions

The intermediate sessions followed more or less the same process. However, the participants were encouraged to focus on hot spots. Sessions started off with a homework review followed by approximately 45 minutes of imaginal exposure. Thereafter, 15 to 20 minutes of the session time was allocated to processing. The last 15 minutes of the sessions were used for in-depth discussions of in vivo homework assignments.

The final sessions also started off with a homework review. Then, 20 to 30 minutes were spent on recounting the trauma. This was followed by reviewing the participant's progress in treatment. Towards the ending of the sessions, the researcher discussed continued application of all that the participants had learned up to this point. Discussions around relapse prevention were fostered before treatment was terminated. During the last session with each participant, the post-assessment measures were administered as was done during the baseline phase.

5.3 Treatment fidelity

Treatment fidelity refers to the ongoing assessment, monitoring, and enhancement of the reliability and internal validity of a study. Treatment fidelity is regarded as an integral component of reliable and credible intervention research (Kratochwill & Levin, 2014). Treatment fidelity furthermore defines the extent to which the prescribed treatment, PE in this case, was delivered to the client (Kendall & Beidas, 2007).

In the present study, treatment fidelity was ensured by a variety of practices. All Zoom sessions were recorded and securely stored on a Google Drive account which only the researcher had access to as it was password protected. The researcher was supervised by Dr Duane Booysen who was to advise or assist when any adverse events arose during the

intervention. Continuous ad hoc supervision took place. Sessions were reviewed by an intern clinical psychologist who was also familiar with PE.

5.4 Ethical considerations

The researcher obtained ethical clearance by the Rhodes University Research Projects and Ethics Review Committee (RPERC) and the Rhodes University Human Ethics Committee (RU-HREC) (See Appendix G). In addition to the ethical approval, gatekeeper permission was also obtained before the intervention commenced. This included permission from the Counselling Centre Manager (See Appendix I) and the Registrar (See Appendix J).

Due to the nature of the research project, the psychological wellbeing of participants was regarded as a priority throughout the study. Therefore, as previously mentioned, individuals who were excluded from the study were referred to the Counselling Centre.

Throughout the research process, important aspects such as informed consent, confidentiality, beneficence, and non-maleficence were maintained throughout (Bless et. al., 2014). Participants were, for example, presented with a "Client Consent Form" and "Client Information Sheet" which stipulated important information about the research process. The following important topics are covered: Purpose of the study, procedures, prospective risks and discomforts, prospective benefits to participants and/or society, confidentiality, participation, and withdrawal, and written informed consent.

No significant adverse events occurred throughout the intervention phase. One participant did however inform the researcher of a panic attack that she experienced during the course of treatment and was provided an additional session to facilitate containment. The panic attack was not related to the intervention and took place during a sporting event that the participant attended.

Chapter summary

Chapter 5 provided an overview of the intervention phase of the study, i.e., online PE, during which treatment was provided. As in Chapter 4, the chosen assessment measures were discussed, and the researcher pointed out during which stage of the intervention each of these were administered or implemented. The chapter concluded with issues related to treatment fidelity, and finally, ethical considerations.

Chapter 6

Online PE - Case Studies

Chapter overview

Chapter 6 provides an idiographic overview of the three trauma survivors who participated in the present research study. First, a brief introduction of each participant and their trauma is provided. This is followed by a discussion of their presenting complaints. It is important to note that all three participants presented with symptoms of PTSD, as well as co-morbid depression. These symptoms were also affirmed by the chosen assessment measures, i.e., PHQ-9, PSSI-5, and PCL-5. Then, case conceptualizations are presented for each one of the three participants by using Emotional processing theory.

6.1 Case introductions

To maintain the anonymity of the three research participants, they will be referred to as Participant A, Participant B and Participant C.

6.1.1 Participant A

Participant A was a 23-year-old female law student originally from Harare, Zimbabwe. At the time of the intervention, she was in her penultimate year. She resided off-campus in a shared house from which she attended her online sessions.

Participant A was physically assaulted by her mother in early 2021 while she was home during the university vacation. She reported that, leading up to the incident, her mother had been distant towards her and that there had been a negative atmosphere in the house. One afternoon, she had gone out with her brother and upon returning home later that evening, she realized that she had been locked out of the house. Her father eventually opened for her and not long after she entered her bedroom, her mother came in with a belt and physically assaulted

her. She sustained a lot of bruising on her body and her face due to the assault. She did not seek medical attention but reported that her father monitored her injuries.

6.1.2 Participant B

Participant B was a 22-year-old female student. She was in her fourth year studying towards a bachelor's degree in fine arts. She resided off-campus in a garden cottage.

In 2013, Participant B, her mother, and her brother survived a head-on collision with a truck during which her grandmother passed away. The accident took place while they were standing still at a stop-and-go. The truck driver was presumably drunk and fled the scene. During the traumatic event, Participant B sustained injuries and received medical treatment as she and her brother were taken to a nearby hospital by an ambulance. She has a scar on her neck as a result thereof.

Although this was the trauma focused on for the research study, Participant B also reported other traumas. Firstly, she reported a traumatic childhood characterized by abandonment from her father. She also reported constant fighting in the household and at the time of the study, her relationship with all her family members were strained. In addition to this, she also reported that she had been physically assaulted by her boyfriend's father during an argument.

6.1.3 Participant C

Participant C was a 20-year-old female student who was studying towards a BA Psychology degree. At the time of the intervention, she resided on-campus in one of the university residences.

Participant C was sexually assaulted in September 2021 by a romantic partner after celebrating his birthday with him at his residence. Initially, she had great difficulty remembering details about the traumatic event but was eventually able to remember in more detail. No consent was given to the sexual acts and her partner became aggressive when she asked him to stop what he was doing.

In addition to this, she was also sexually violated at a school camp when she was in Grade 10. She reported that one of the security guards inappropriately touched her in her sleep one night during the camp. She had never told anyone about the incident.

6.2 Presenting complaints

6.2.1 Participant A

Participant A reported recurring, involuntary, and distressing memories about the incident. Due to how distressing these memories were, she tended to avoid thinking or speaking about what had happened. In session 1, she reported “I kind of just put it to the side and I have just tried to move on from the experience.” She furthermore avoided going home to visit her family after the incident, and even avoided phone calls with her mother. This inevitably took a toll on their relationship.

As stipulated in the DSM-5, individuals with PTSD present with negative alterations in cognition and mood (American Psychological Association, 2013). This was reflected in Participant A’s subjective reports, and her assessment results. First, she presented with negative beliefs about herself, others, and the world. For example, the incident impacted negatively on her ability to trust others as she feared that they would also hurt her. She also presented with feelings of guilt, sadness, and fear. She furthermore reported diminished interest or participation in activities that she used to enjoy. At the time, Participant A had been in a long-term relationship with her boyfriend and her current psychological distress impacted negatively on their relationship from time to time. She reported feeling detached from him, and others from time to time. For example, she reported that “The few times I have tried to talk to people were not that great because people tend to be dismissive and just move on with life.” In addition, she presented with symptoms consistent with marked alterations in arousal and reactivity. She reported feeling more irritable, presented with concentration difficulties and changes in her sleeping pattern.

Participant A's history of depression dates back to 2014 and during that time that she received therapy for the first time at her high school. Upon the commencement of the intervention process, she presented with a variety of depressive symptoms. Firstly, she presented with anhedonia and as mentioned before, she did not engage in activities that she once enjoyed. For example, during the course of treatment, her graduation took place and in the session prior to that she reported not feeling happy or excited. She had also lost a significant amount of weight after the incident. As mentioned before, her sleeping pattern had also been impacted and she struggled to fall asleep. Her depressive symptoms also reflected feelings of guilt, sadness, and fear. Her concentration was significantly impaired and impacted negatively on her academic performance at the time (for example she once wondered, "Why am I still doing this?") No suicidal ideation was reported.

6.2.2 Participant B

Participant B reported frequent and distressing dissociative reactions, i.e., flashbacks, during which she felt like she was reliving the traumatic event. She also reported that she often had nightmares of a loved one being involved in a motor vehicle accident. Her view of herself, others and the world were negative. For example, she presented with low self-esteem and lacked confidence. This frustrated her and she felt guilty and ashamed of how she had been impacted by the incident and that she had not been able to resume her life as per usual. Participant B reported many avoidance symptoms. She avoided thinking or speaking about the traumatic experience. She also reported avoiding external reminders of the trauma. She avoided machinery in the arts department at the university, which impacted on her academic performance. She avoided trucks and could not bear the mere sight thereof, whether stationary or moving. She would often take alternative routes when walking to university so she would not have to see a truck. She avoided watching movies with a theme of racing, or action movies in which there were motor vehicle accident scenes. Furthermore, she feared driving and did not

drive with someone who she did not know. On one occasion, she reported “I am 22 and I do not even have my driver’s license.” This once again reflected her avoidance in terms of driving in general and reinforced her low self-esteem. This made going home difficult and resulted in her parents having to fetch her, which impacted on her independence and was a concern to her. Participant B presented with significantly negative alterations in her cognition and mood, and this was evident in her affect during sessions, as well as her assessment results. Participant B also reported diminished interest or participation in activities that she used to enjoy. During one of the sessions, she expressed how she was no longer enjoying her studies and that she no longer feels as creative as she used to. She was hypervigilant, and easily became startled, especially at the sight of a truck. She also reported feeling more irritable and struggled to manage her anger. This reflected marked alterations in arousal and reactivity as stipulated by the DSM-5 (American Psychological Association, 2013).

Participant B reported a long history of depressive symptoms. She had been in a therapy process during high school and again in 2021 but reported that she had never been given a formal diagnosis. She was on antidepressants from January 2021 until November 2021. Thus, at the time of the intervention, she was not on any psychotropic medication.

Participant B presented with a low mood and reported crying a lot. She was also often tearful during sessions. She presented with anhedonia, which negatively impacted on her academic performance, as well as her relationships. During the 7th session, Participant B reported that she and her boyfriend had decided to take a break from their relationship to allow her to focus on her mental health. Participant B’s depression did not only impact negatively on her global functioning, but also on her treatment process.

6.2.3 Participant C

Participant C presented with a range of trauma related symptomology. She reported strong physiological reactions to both internal and external cues that symbolize or resemble aspects

of the trauma (American Psychological Association, 2013). She would, for example, become distressed when seeing a vehicle like the perpetrator's vehicle, or when seeing males that resemble his physical characteristics. This resulted in her implementing many avoidance strategies in attempt to escape feared situations. Participant C was fearful of going anywhere alone as she feared bumping into the perpetrator or his friends. She felt that her freedom had been taken away from her as she always had to arrange for someone to accompany her while performing daily tasks, such as walking to classes or running errands.

Initially, she was very confused about the incident as her memories were fragmented and she struggled to remember important aspects thereof (American Psychological Association, 2013). For example, she reported "I think there are some parts of it that I have just put so far back that I cannot even remember them." She reported feelings of guilt and shame for not having had the courage to escape the situation. For example, "I do not know why I did not do anything. I just lay there." Participant C had lost trust in others and struggled to understand how someone who claimed to love her could be so cruel to her.

In addition to Participant C's trauma symptoms, she presented with depression symptoms which had been present since she was in Grade 10. She reported that she attended a few counselling sessions at her high school. These symptoms were also reflected in her score on the PHQ-9. Her depression symptoms had been negatively impacting on her academic performance as it affected her mood, sleeping pattern, energy levels, concentration, and motivation.

6.3 Case conceptualizations

The case conceptualizations for all three of the participants were based on EPT which was discussed in Chapter 2 (Foa & Kozak, 1986).

6.3.1 Participant A

Participant A had developed a pathological fear structure after the traumatic event (Rauch & Foa, 2006). After the incident, she had become afraid of her mother and feared that she would attack her again. This reflected a belief that she could not trust her home environment. Lang (1977) posits, this fear structure then serves as a programme to avoid feared situations, i.e., avoidance. As previously mentioned, Participant A avoided memories about the incident, as well as thinking or speak thereof. In addition, she avoided going home or having phone calls with her mother. These avoidance strategies served as a perpetuating factor and maintained her PTSD (Lang, 1997).

In order to modify these erroneous elements contained in the fear structure, the fear structure needs to be activated by using exposure techniques, such as imaginal exposure and in-vivo exposure (Foa & Kozak, 1986). According to EPT, it is deemed advantageous for clients to present with an increased level of emotional and physiological reactivity when engaging with the trauma memory, as it is indicative of an activation of the trauma memory. This was achieved in sessions with Participant A. During the imaginal exposure, she initially presented with strong psychological and emotional reactions when revisiting the trauma memory. She became tearful a few times and reported on multiple occasions that her head was “feeling hot.”

However, this was deemed necessary as it is believed that this will promote processing and habituation (Foa & Kozak, 1986; Foa et al., 2019). Participant A was continuously supported in sessions and ample time was allocated to processing. Calm breathing techniques were also encouraged throughout the sessions, and especially when she became distressed. Although over-engagement was considered as a potential reason behind her level of distress, it was ruled out as she maintained a sense of grounding and control (Foa, Hembree & Rothbaum, 2007).

Habituation took place for Participant A, and this was reflected in her subjective reports, as well as assessment results, i.e., PCL-5 and PSSI-5. This was due to the corrective and incompatible information provided during fear activation in treatment. During the termination session, she reported that it no longer felt like she was in a horror movie but rather that she was watching one.

6.3.2 Participant B

The pathological fear structure that had developed after Participant B's traumatic experience, served as a programme to avoid feared situations (Rauch & Foa, 2006). As previously discussed, she presented with a variety of avoidance elements, which perpetuated and maintained her PTSD (Lang, 1997).

Participant B became significantly distressed when engaging in imaginal exposure during the sessions. This might have been indicative of over-engagement with the trauma memory experienced excessive emotional distress and that it was not necessarily conducive at that point (Foa, Hembree & Rothbaum, 2007). When asked to rate her SUDs, participant B presented with very elevated scores, with the highest being 95 at some point. Thus, due to possible over-engagement, Participant B's treatment process, and overall outcome of treatment was negatively impacted (Rauch & Foa, 2006).

As mentioned in Chapter 2, depression might hinder effective emotional processing due to issues related to self-efficacy, feelings of hopelessness, and cognitive biases which hinder the incorporation of corrective information, as well as habituation (Foa & Kozak, 1986). This might also have been a contributing factor in Participant B's distress during the sessions.

Perhaps online PE was not the ideal form of intervention for this participant. However, to ensure optimal treatment, the researcher altered and modified sessions to Participant B's capacity and she was continuously supported in sessions.

However, habituation occurred for Participant B, as reflected in the slight decrease in her subjective units of distress (SUDs) during the imaginal exposure, as well as her assessment scores as presented in Chapter 7. This is due to the fact that, through the process of habituation, her irrational and erroneous beliefs were disconfirmed and results in a positive experience as she come to realize that the perceived outcome that was once linked to the fear structure had weakened. Habituation across sessions is considered a good predictor of the effectiveness of treatment as it allows for the realization that the meaning attached to the stimulus changes during treatment and thus differs from the initial beliefs prior to the commencement of treatment (Foa & Kozak, 1986; Foa et al., 2019).

6.3.3 Participant C

The pathological fear structure that Participant C had developed after the traumatic event perpetuated her avoidance, which inevitably maintained her PTSD. She constantly lived in fear, which reflected a negative view of the self (i.e., that she is incapable of protecting herself), the other (i.e., that others cannot be trusted), and the world (i.e., her surroundings are threatening and dangerous). Therefore, even objectively safe situations are viewed as dangerous.

For Participant C, these erroneous beliefs were modified by imaginal exposure and in-vivo exposure, as suggested by Foa and Kozak (1986). During the imaginal exposure, she often became distressed and tearful, and requested to take breaks. According to EPT, and as discussed previously, this is advantageous as it is indicative of an activation of the trauma memory. In addition, it also promotes processing and habituation, which occurred for Participant C and will be illustrated in Chapter 7. She continuously made use of the calm breathing techniques during sessions, and during in-vivo exposure. Here, the therapeutic relationship and responsiveness is deemed to be a key element in providing support (Norcross & Wampold, 2019). More discussion on this topic will be provided in the final chapter.

Chapter summary

Chapter 6 provided an idiographic overview of the three trauma survivors who participated in the present research study. First, a brief introduction of each participant and their trauma was provided, and this was followed by a discussion of their presenting complaints. Lastly, each participant was formulated and conceptualized by using EPT.

Chapter 7

Results

Chapter overview

This chapter presents the results of online PE with university students. First, by using visual inspection, the results of each of the three participants who partook in the research study are presented. Secondly, descriptive analysis is used as a supplementary to the visual inspection. The chapter concludes with an overview of the online PE fidelity ratings as completed by the three participants post-intervention.

7.1 Results

For the present study, it was decided that an idiographic case description would be used to contextualize each participant. This is recommended by Barlow and Nock (2009) as it allows for the exploration of casual relations among variables.

Table 7.1 reports on the sample characteristics. All three participants, i.e., 100% were female (one male was screened but did not meet the inclusion criteria). The mean age of participants was 21 years, and a standard deviation of 1,5 years. Again, to protect the identities and confidentiality of the three participants, they will be referred to as Participant A, Participant B, and Participant C.

Table 7.1*Sample characteristics of trauma survivors*

Participant	Gender	Age	Race	Marital status	Nationality	Trauma type	Trauma history	Education	Employment
A	Female	23	Black African	Single	Zimbabwean	Physical assault	Single	University	Full-time student
B	Female	22	White	Single	South African	Motor vehicle accident, witnessed injury and dead body	Multiple	University	Full-time student
C	Female	20	Black African	Single	South African	Sexual assault, rape	Multiple	University	Full-time student

7.2 Visual inspection

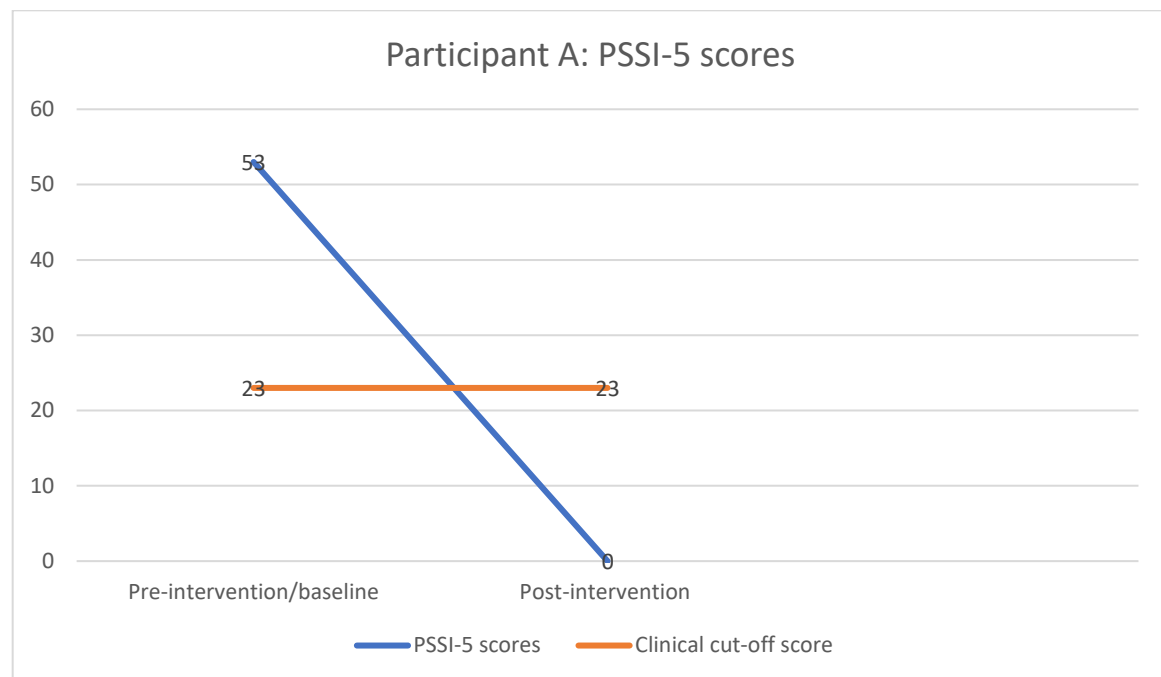
According to Lane and Gast (2014) visual inspection allows for the analysis and understanding of data of participants by means of a systematic approach. It is advantageous to ascertain good post-intervention functioning of participants based on the visual representation of clinical measures (Lane & Gast, 2014). Three key features are used to assess the data, namely the level or mean performance in a condition (i.e., baseline or intervention), the trend of the data or the direction in which the data is progressing, which can either increase or decrease, and the variability or stability of the data (Kratonwill & Levin, 2014; Lane & Gast, 2014).

In addition to these core analytical features, the analysis of single case data also entails examining within-condition data and between-condition data (Lane & Gast, 2014). Within-condition data refers to the examination of the data in each phase, for example, during the intervention phase as was done by administering the PCL-5 before each session (Lane & Gast, 2014).

The following section provides an idiographic presentation for the participants ($n = 3$) who completed the intervention.

7.2.1 Participant A

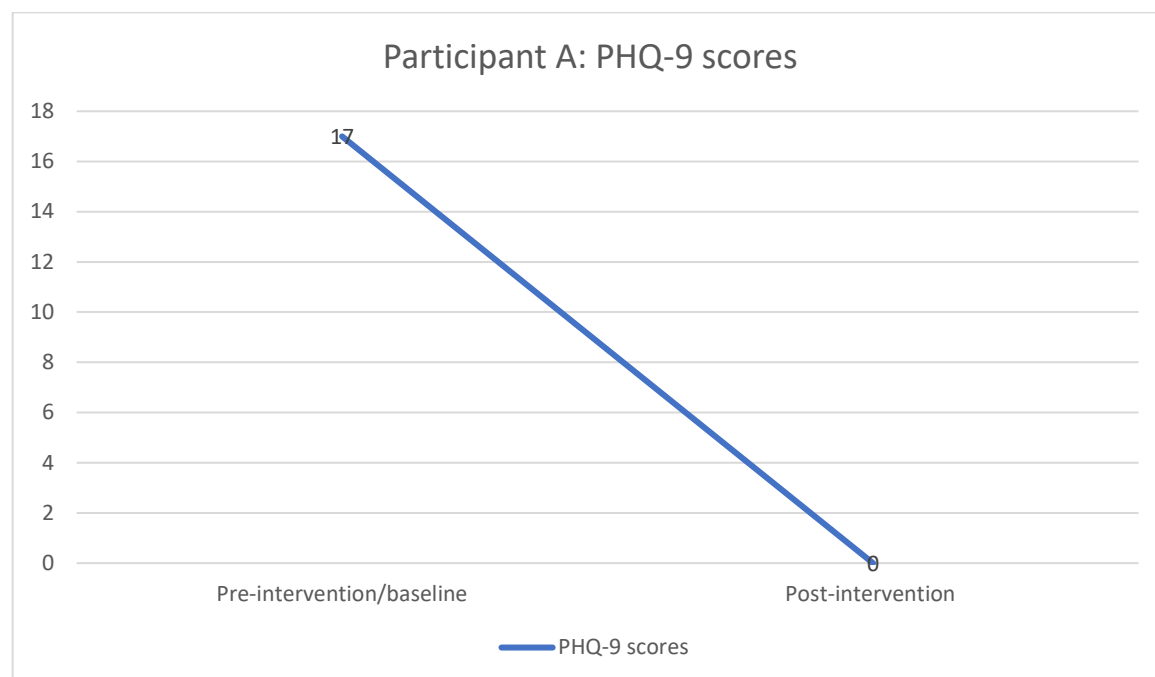
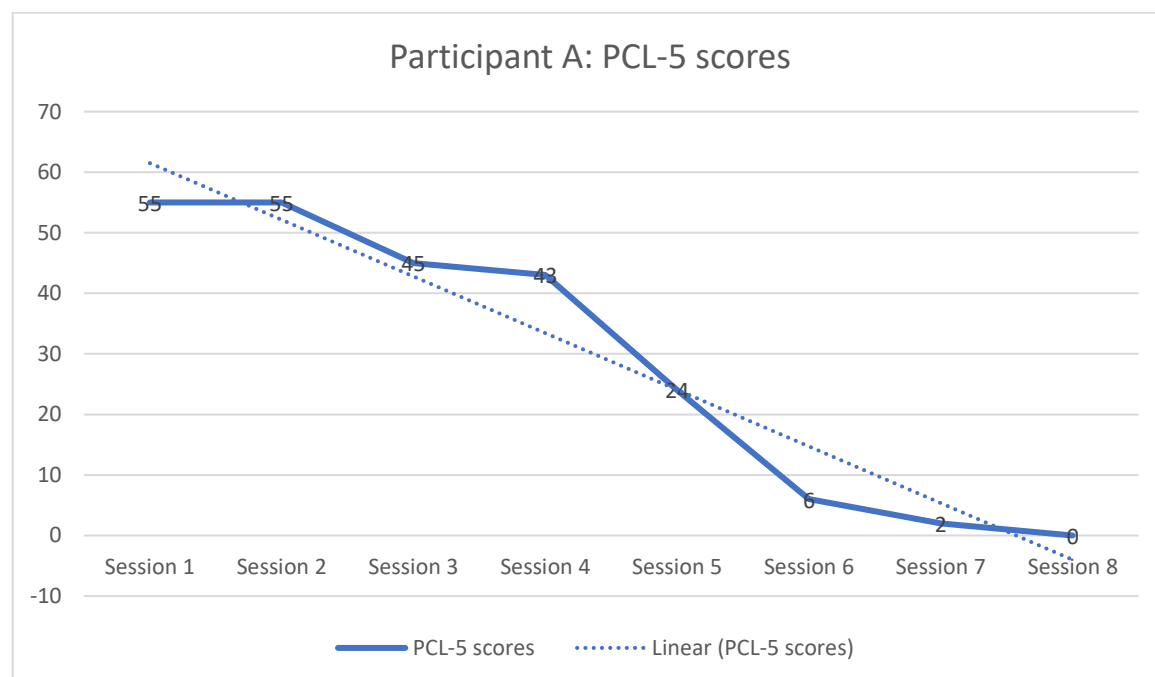
At the time of the intake, Participant A met the criteria for PTSD. Her PSSI-5 score was 53 while the cut-off score is 23. At the end of treatment, Participant A did not meet the criteria for PTSD and had a negative PSSI-5 score, i.e., 0. Figure 7.1 illustrates Participant A's treatment outcome for PTSD, i.e., her PSSI-5 scores pre-intervention and post-intervention.

Figure 7.1*Participant A's PSSI-5 scores*

In addition, Participant A presented with symptoms of moderately severe depression, as indicated by her score on the PHQ-9. Her score was 17. At the end of treatment, Participant A also had a negative diagnosis of depression as she presented with no depression related symptoms on the PHQ-9. Figure 7.2 illustrates the decline in Participant A's PHQ-9 scores.

Figure 7.3 depicts Participant A's trauma symptoms during the intervention, which were measured by the PCL-5.

At session 1 and 2, there is no difference in Participant A's PCL-5 scores. However, at session 3 there is a clear downward trend, which continues until session 8. The stagnant scores at session 3 and session 4 could be attributed to the starting of exposure therapy. At session 6, Participant A had a sub-clinical score on the PCL-5. At the end of treatment, Participant A did not meet the diagnosis of PTSD.

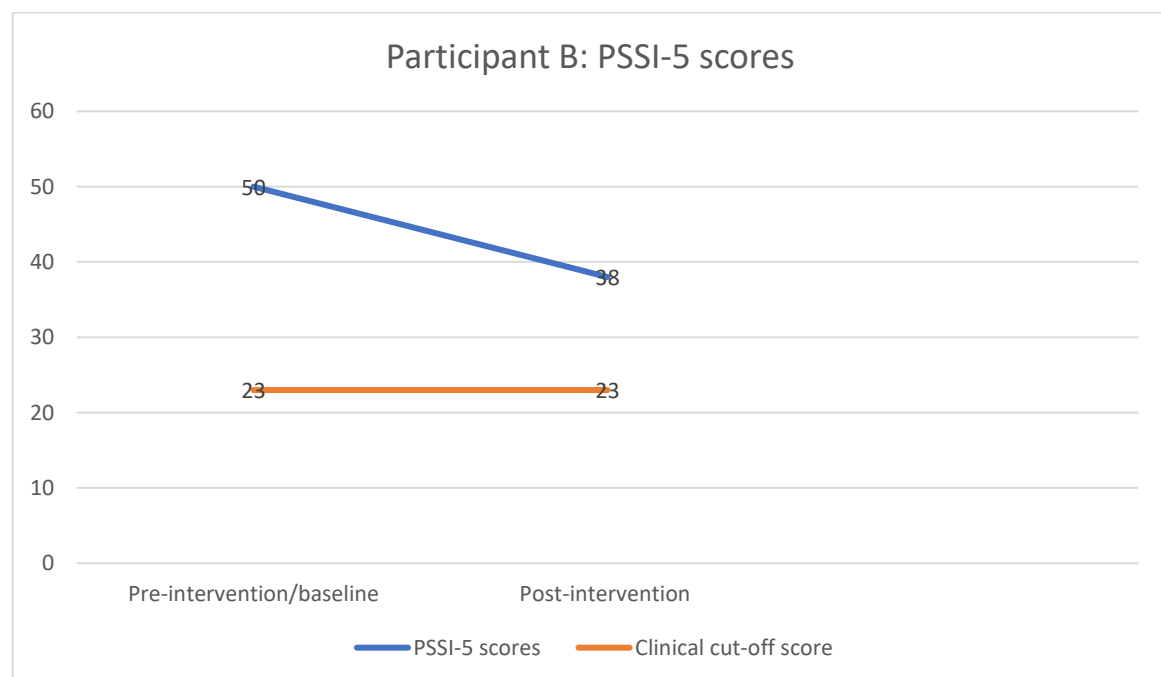
Figure 7.2*Participant A's PHQ-9 scores***Figure 7.3***Participant A's PCL-5 scores*

7.2.2 Participant B

At the time of the intake, Participant B met the criteria for PTSD. Her PSSI-5 score was 50, i.e., 27 points above the clinical cut-off score (23). At the end of treatment, Participant B's PSSI-5 score had improved and was 38. Figure 7.4 illustrates Participant B's treatment outcome for PTSD, i.e., her PSSI-5 scores pre-intervention and post-intervention.

Figure 7.4

Participant B's PSSI-5 scores

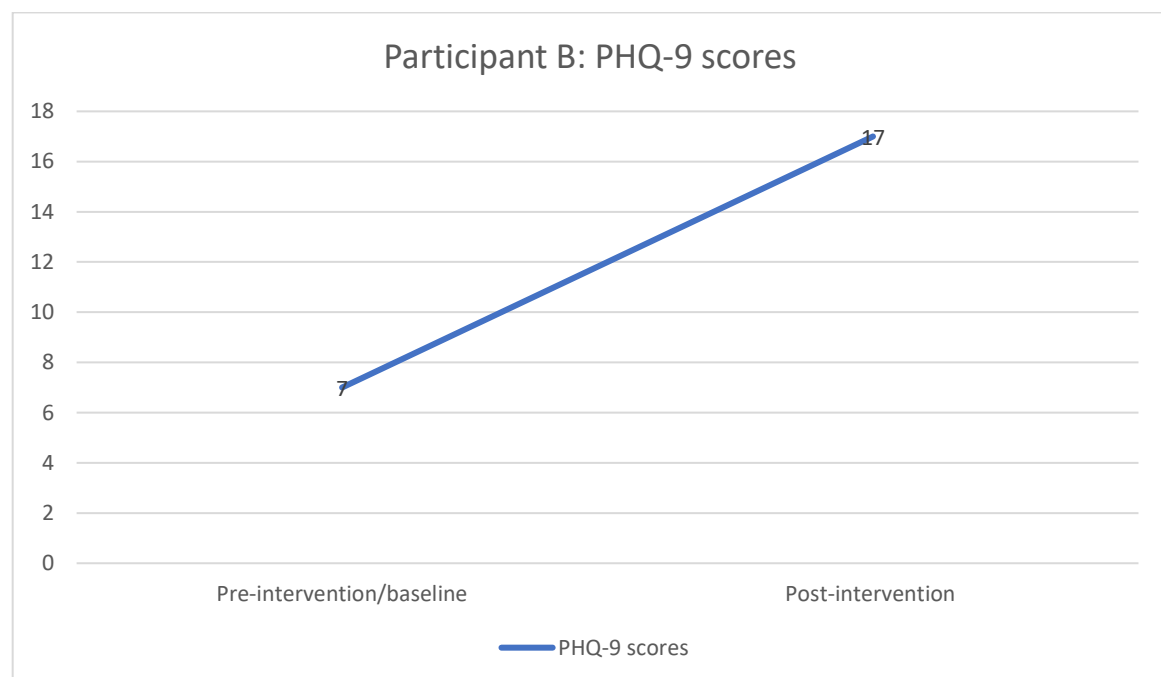


Participant B also presented with symptoms of mild depression. This was indicated by her score of 7 on the PHQ-9. At the end of treatment, Participant B's score had increased to 17, indicating moderately severe depression. This could be attributed to the fact that she had stopped taking her anti-depressants when the treatment commenced. According to her, she had stop taking the medication as she was not able to experience any positive emotion. This was done without the knowledge of the researcher and Participant B was referred to a psychiatrist as soon as this became known. Figure 7.5 illustrates the increase in Participant A's PHQ-9 scores.

Figure 7.6 illustrates participant B's PCL-scores throughout the intervention process. At session 1, 2 and 3 there is no difference in Participant B's PCL-5 scores. However, at session 3 there is a clear increase which could be attributed to the start of in-vivo exposure. Then, the PCL-5 scores gradually decrease until there is an increase in session 8. This could be linked to Participant B's elevated depression scores, which may have hindered her intervention process.

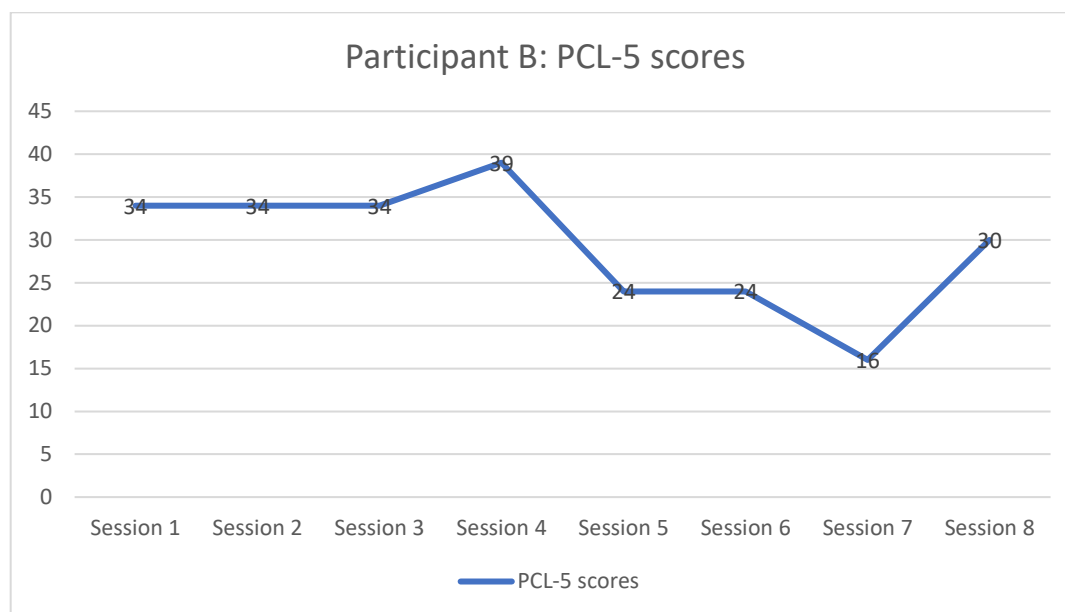
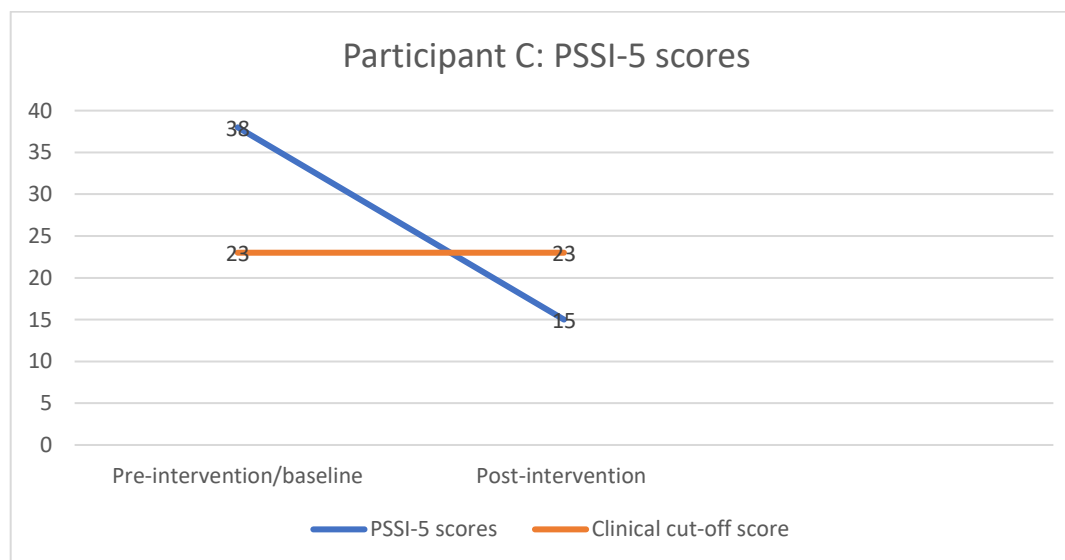
Figure 7.5

Participant B's PHQ-9 scores



7.2.3 Participant C

Participant C met the criteria for PTSD at the time of the intake. Her initial PSSI-5 score was 38. At the end of treatment, i.e., post-intervention, Participant C's PSSI-5 score was 15 and fell below the clinical cut-off score. Figure 7.7 illustrates Participant C's PSSI-5 scores pre-intervention and post-intervention.

Figure 7.6*Participant B's PCL-5 scores***Figure 7.7***Participant C's PSSI-5 scores**7 - Participant C's PSSI-5 scores*

Participant C also presented with symptoms of moderately severe depression. This was indicated by her score of 15 on the PHQ-9 prior to treatment. At the end of treatment, Participant C presented with a PHQ-9 score of 11, i.e., moderate depression. Thus, although

she still presented with depression symptoms, there had been a decline in the severity thereof.

Figure 7.8 illustrates the increase in Participant A's PHQ-9 scores.

Figure 7.9 depicts Participant C's trauma symptoms during the intervention, which were measured by the PCL-5. Participant C's PCL-5 scores remained stagnant for the first three sessions. At session 4, there seems to be a decrease in her scores for the first time and this could be correlated to her reflection after the session during which she stated that it had been a relief to talk about the trauma, even though it was unpleasant. For the remainder of the sessions there is also a steady decrease in PCL-5 scores.

Figure 7.8

Participant C's PHQ-9 scores

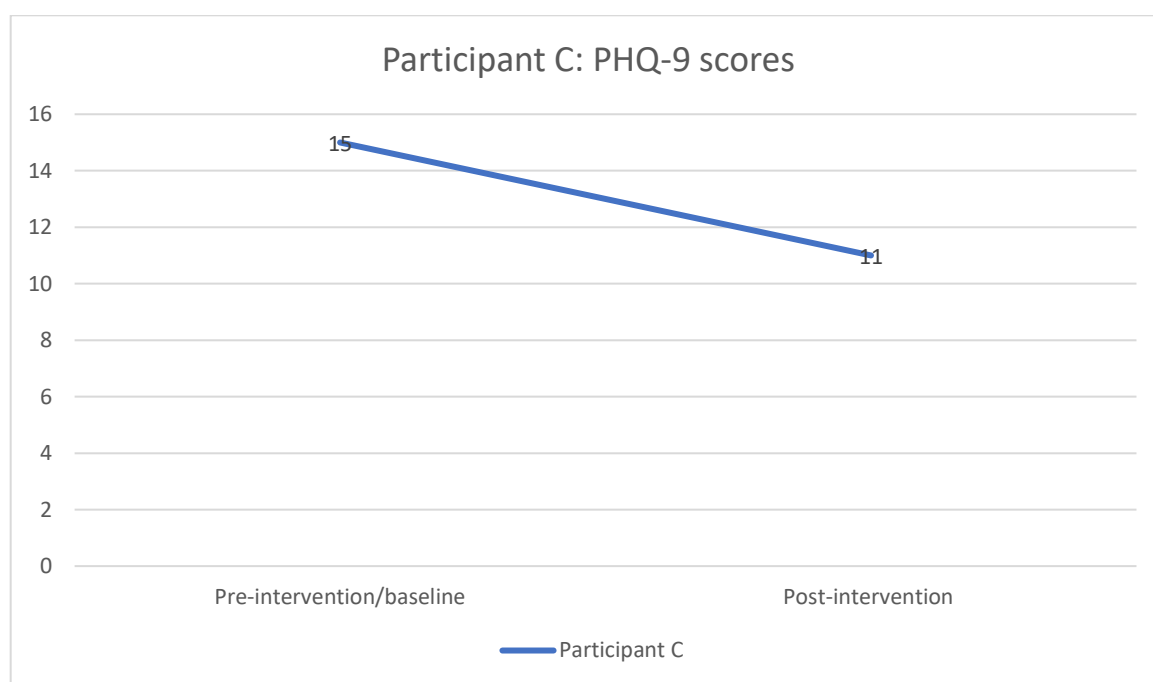
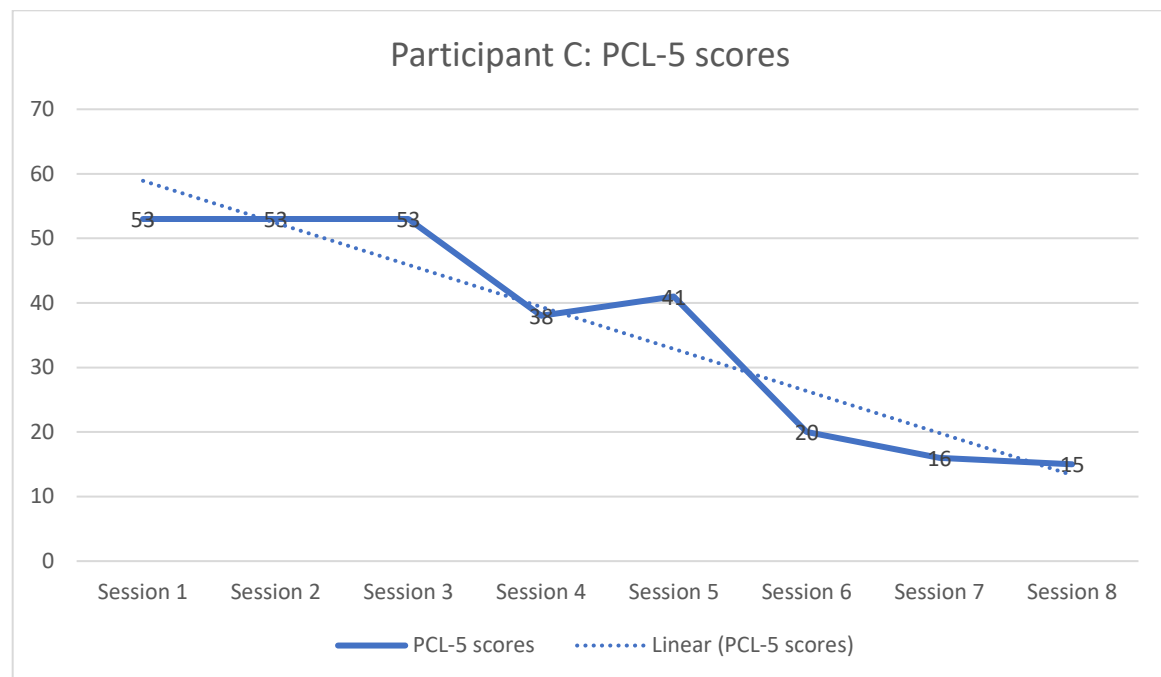


Figure 7.9*Participant C's PCL-5 scores*

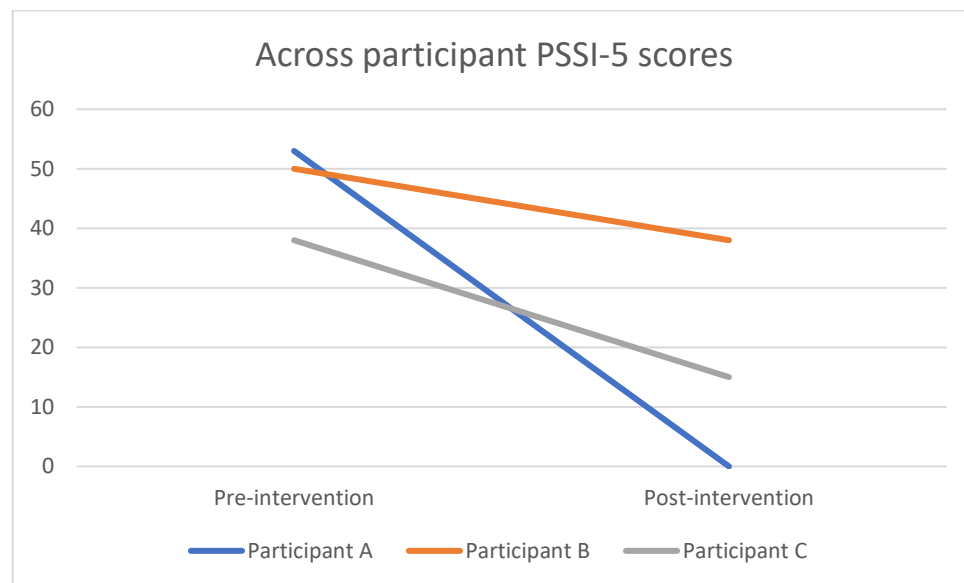
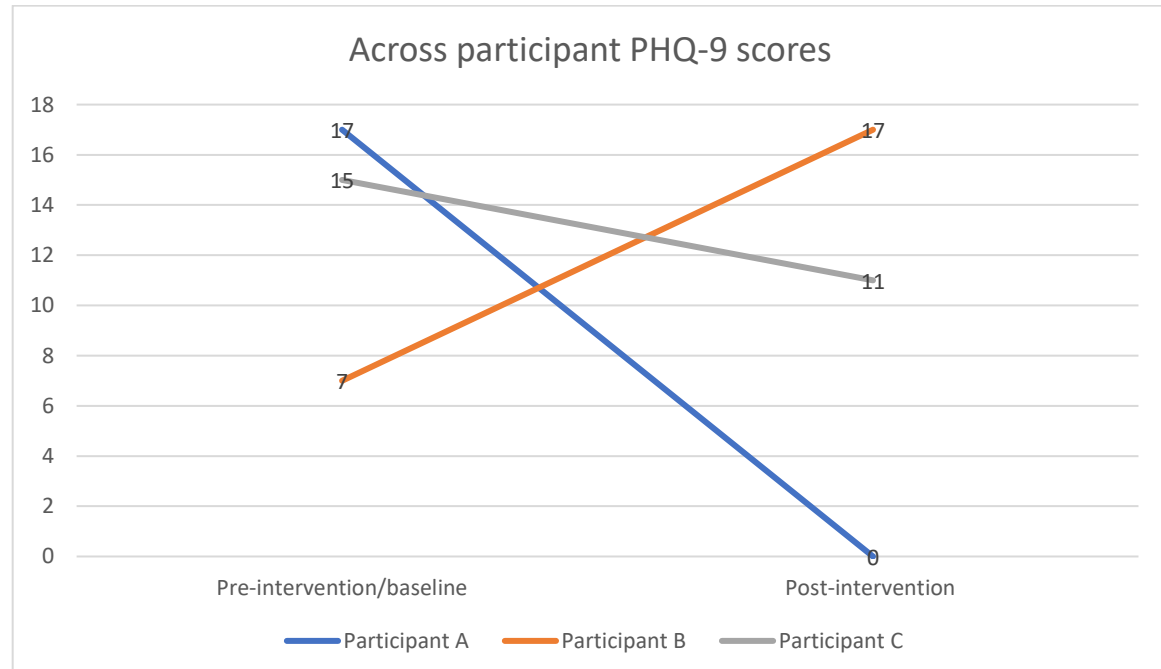
7.3 Descriptive analysis

7.3.1 Across participant trends

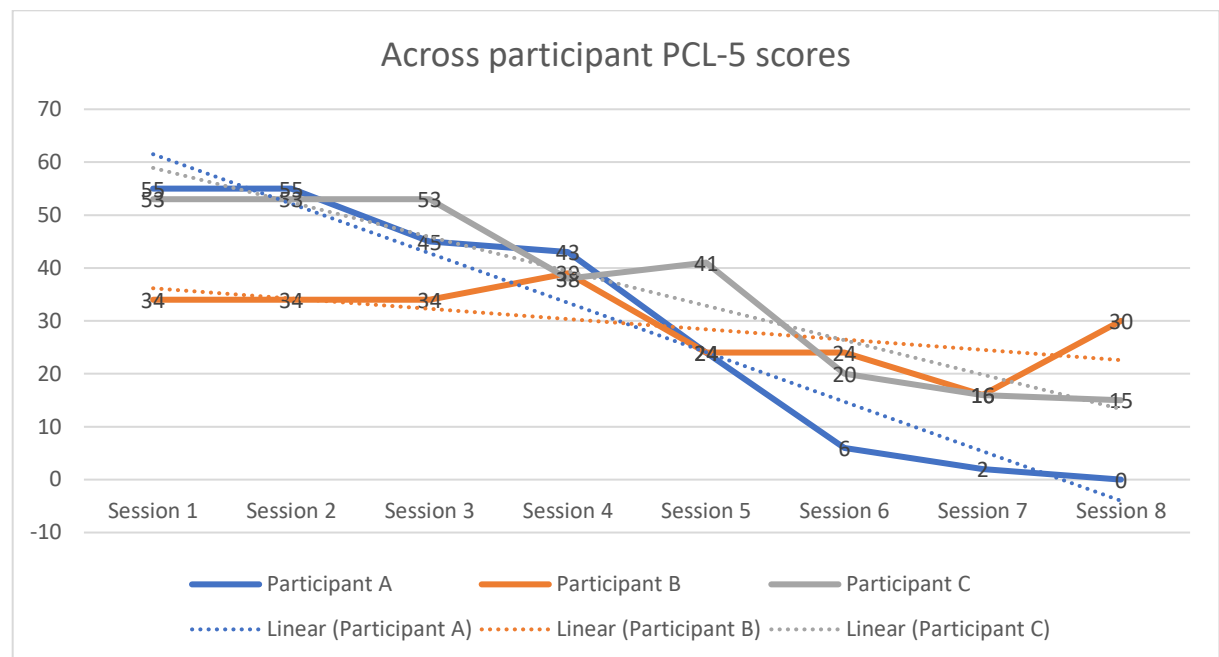
In Figures 7.10 to 7.12, we can see the combined trends across the three participants who completed the treatment.

Figure 7.10 illustrates a downward trend across all three participants' PSSI-5. Overall, there appears to be a downward trend in PTSD symptom reduction from pre-intervention to post-intervention.

In terms of the participants' PHQ-9 scores, as illustrated by Figure 7.11, there is also a downward trend in depression symptom reduction from pre-intervention to post-intervention for Participant A and Participant C. However, for Participant B, there is an increase in her depression symptomology.

Figure 7.10*Participant A, B and C's PSSI-5 scores***Figure 7.11***Participant A, B and C's PHQ-9 scores*

Lastly, figure 7.12 shows the three participants' PCL-5 scores across the 8 sessions. For all three participants, there is a downward trend in scores, indicating that habituation had taken place and that treatment was effective.

Figure 7.12*Participant A, B and C's PCL-5 scores*

7.4 Online PE fidelity ratings

Treatment fidelity is regarded as an integral part of credible intervention research (Foa & Meadows, 1997). In the present study, all treatment sessions were recorded via Zoom and saved securely to a Google Drive folder to which only the researcher had access.

To review and assess the treatment, Adherence Scales were completed by a colleague of the researcher, who was, at the time of the study, an Intern Clinical Psychologist. The assessor had a professional relationship with the researcher and biases, or conflict of interest was avoided. The assessor listened to 25% of the recordings (Session 1 and session 2 for each participant). The rating scale ranged from 0 = poor, 1 = barely adequate, 2 = good, and 3 = excellent. A fidelity rating was then formulated, and this is illustrated in Table 7.2.

In the present study, treatment fidelity across the three participants were found to be good. On average, 94% fidelity to the treatment manual was maintained by the researcher.

Table 7.2*Online PE fidelity ratings*

Participant	Session 1	Session 2
Participant A	Good	Excellent
Participant B	Good	Excellent
Participant C	Good	Good

7.5 Feasibility of online PE

The use of PE and research on its feasibility in South Africa is limited (Booyesen & Kagee, 2020). Hence, as stipulated by the second hypothesis of the present study, the study aimed to determine whether online PE will be perceived as feasible to implement on an online platform among university students seeking trauma therapy for symptoms of traumatic stress and depression.

To determine the feasibility of the present study, i.e., online PE, each participant was presented with an Implementation measure post-intervention. This consisted of the Acceptability of Intervention Measure (AIM), Intervention Appropriateness Measure (IAM), and Feasibility of Intervention Measure (FIM) (Weiner et al., 2017).

Participants were requested to answer questions related to the acceptability, appropriateness, and feasibility of online PE, by rating these according to four options: “Completely disagree”, “Disagree”, “Neither agree nor disagree”, “Agree”, or “Completely agree.” See Appendix H.

As mentioned, and discuss throughout the study, there were other issues which impacted on the overall feasibility of the intervention. One such factor was Eskom loadshedding, which, at times, required the researcher to reschedule sessions with the participants. As a result, sessions were further apart than would be desired. Another factor was the participants’ busy student schedules, which, at times, required them to reschedule sessions. In retrospection, it

might have been better implementing the intervention during a university vacation, or during a more quiet, less busy time of the academic year. Not only do these factors impact negatively on the feasibility of the study, but serve as limitations, which will further be discussed in the following chapter.

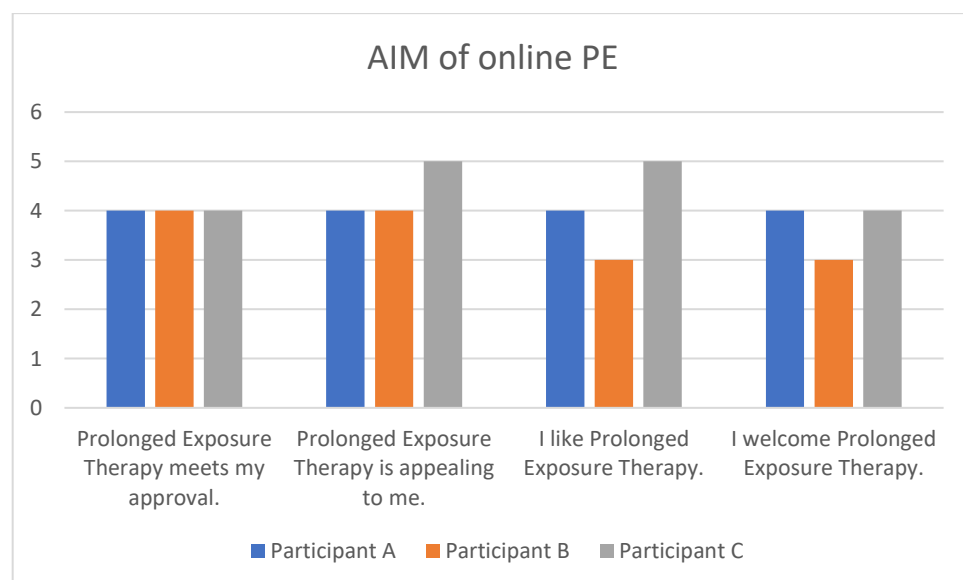
7.5.1 Implementation measures

Key:

1	Completely agree
2	Disagree
3	Neither agree nor disagree
4	Agree
5	Completely agree

Figure 7.13

Acceptability of Intervention Measure (AIM)

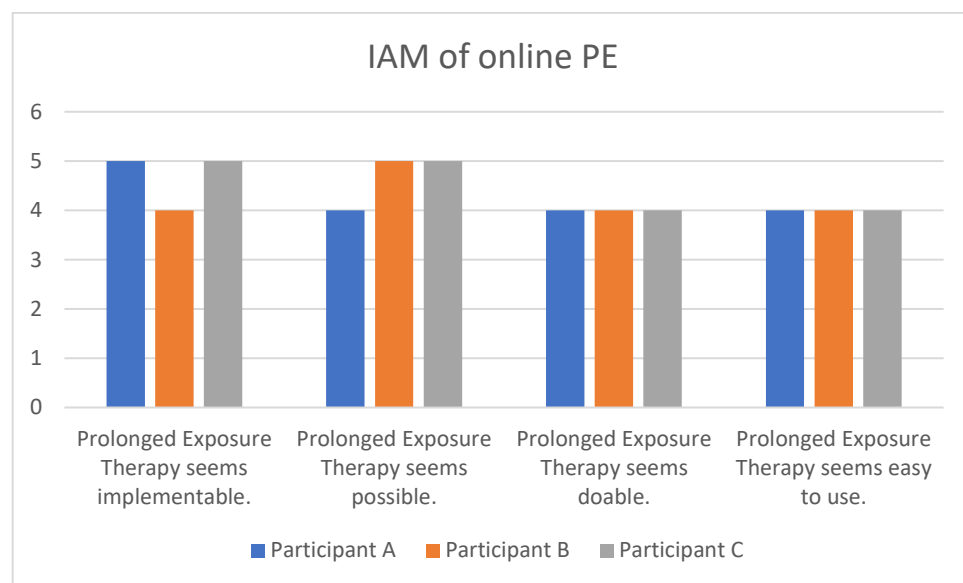


In terms of the AIM of online PE, all three participants seem to deem it an acceptable intervention measure. The most common response to questions were “agree”. Participant C

responded with “completely agree” to two of the questions. Thus, it seems that overall, the three participants consider online PE to be an acceptable intervention measure, which indicates that this style of implementation would most likely be accepted by clients at organizations such as the Rhodes Student Counselling Centre.

Figure 7.14

Intervention Appropriateness Measure (IAM)



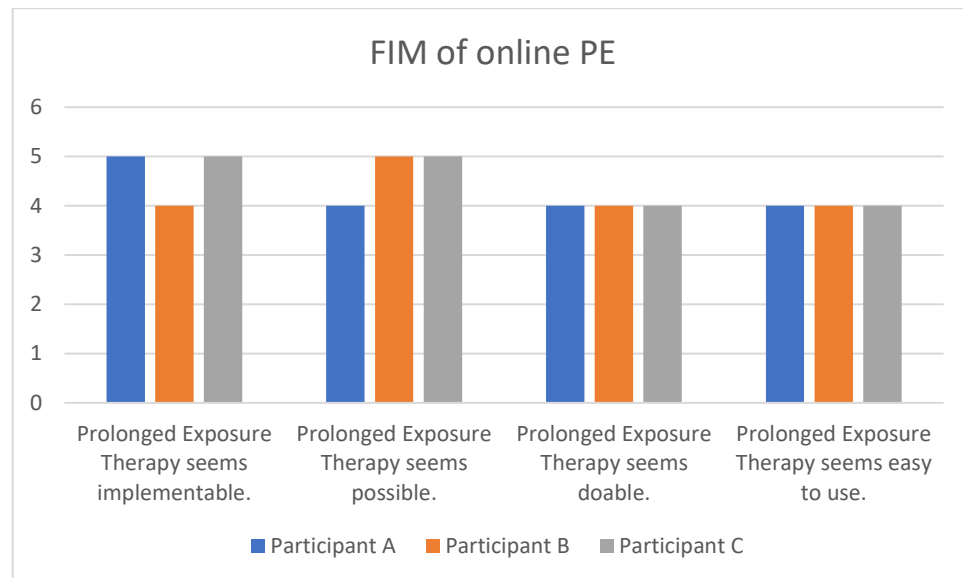
Participants also answered four questions regarding the appropriateness of online PE. While Participant A and Participant C’s answers indicated satisfaction in terms of the appropriateness, Participant B’s answers, especially in terms of online PE being a good match for her. This is significant, as it was speculated in Chapter 6 that perhaps, online PE was not the ideal form of intervention for Participant B. This furthermore indicates that Participant B shows good insight as she was able to reflect and make judgements based on her experience with online PE. Post-intervention, it was decided that Participant B would continue with therapy sessions with the researcher at the Student Counselling Centre and that a different approach would be used to address her current difficulties.

Thus, although the scores indicated that, overall, online PE is deemed appropriate, factors such as comorbid disorders, as well as other factors should be taken into consideration before

it is selected as the chosen intervention for a client. Yet, more studies exploring the implementation aspects of online PE in South Africa is deemed necessary, as this study merely provides preliminary data.

Figure 7.15

Feasibility of Intervention Measure (FIM)



There seems to be a horizontal trend amongst the participants' ratings regarding the feasibility of online PE. The mode answer was "agree." It is interesting to note that, other than the researcher, the participants did not seem to identify issues with the feasibility of the intervention, for example rescheduling due to loadshedding. This could be due to the otherwise structured nature of online PE, as well as the fact that the researcher was fairly directive in her approach. Thus, despite challenges, participants were grounded by the structure of the intervention, as well as the agenda that was set before the commencement of each session.

Chapter summary

The chapter presented an overview of the online PE intervention results by making use of idiographic visual inspection and descriptive analysis. The results showed a clear downward trend in symptom reduction for PTSD. For two of the participants, there was also a downward

trend in symptom reduction for depression. Yet, for one of the participants, i.e., Participant B, there was an increase in depression symptoms, and possible reasons for this was discussed.

Then, the implementation measures which were completed by the three participants were visually illustrated and discussed.

Chapter 8

Limitations, implications, & conclusions

8.1 Summary

The high prevalence of PTSD is global health concern (Koenen et al., 2017). This is especially true for LMICs, such as South Africa, due to limited access to evidence-based trauma treatments (Iribarren et al., 2005; Koenen et al., 2017; Williams et al., 2007). Empirically supported psychological treatments for disorders such as PTSD has been recognised by the World Health Organisation as first-line treatments (Singla et al., 2017). Therefore, the dissemination and implementation thereof are of utmost important to bridge the mental health gap, especially in low-resourced countries like South Africa (Singla et al., 2017).

Teletherapy has been found to be an effective and feasible method to deliver psychological services. However, little is known about students' experiences of teletherapy and its acceptability in low-resource settings, like South Africa (Gericke et al., 2021; Situmorang, 2020).

Considering the prevalence of trauma exposure among university students, the study aimed to investigate the effectiveness and feasibility of online PE for traumatic stress among university students within a South African setting. According to Kazdin (2019), the effectiveness of treatment is determined based on the client's symptoms or adaptive functioning over time. Feasibility, on the other hand refers to whether something can be done or not, as well as how to proceed in doing so (Eldridge et al., 2016).

In order to determine these factors, the present study recruited three students from Rhodes University who presented with PTSD. First, these participants were assessed at baseline using the PSSI-5, as well as the PHQ-9. During treatment, i.e., before each session, each participant completed the PCL-5. Post-intervention, participants were requested to complete the same assessments as completed at baseline. As stipulated by Foa and Meadows (1997), credible

intervention research requires treatment fidelity. Thus, in the present study, fidelity was observed and maintained by a variety of practices, including recording sessions and securely saving these on a Google Drive account. The researcher was furthermore supervised and had continuous ad hoc supervision sessions with her supervisor.

Overall, results of the present study indicated a downward trend in PTSD and depression symptomology, with the exception of one participant whose depression symptoms increased.

8.2 Limitations of the study

A few limitations of the present study are addressed and, stemming from these, some suggestions for future research are offered. Firstly, all three participants were female and thus homogenous. This speaks to the issue of how violent crime or consequent distress may be influenced by gender role socialization and leads to the issue of men underreporting crime because of social pressures associated with masculine gender roles (Sutton & Farral, 2005). Considering this insight in hindsight, the sample should have included males too as the current findings limit the generalisability of results.

Another limitation is that the current study did not include a long-term follow-up with participants, for example a three-month post-intervention follow-up. This would have allowed for evaluation of maintained symptom reduction and would have given insight into the long-term effectiveness of online PE.

Within the context of South Africa, there were challenges which impacted on the intervention, thus impacting on its feasibility, for example Eskom loadshedding. It might also be recommended that future researchers on online PE should have a contingency plan in place should issues such as loadshedding affect the treatment schedule to avoid rescheduling. For example, should funding be available, participants could be provided with data to attend sessions.

In addition, the idiographic nature of the chosen research design may be criticized for being devoid of the general. However, this should not be assumed, as idiographic research provides valuable insights into the functioning of the nomothetic (Barlow & Nock, 2009).

The external validity of the present study is limited by the small sample size. Yet, this is in line with the idiographic nature of SCEDs. Due to the limited sample size and their characteristics, such as location, gender, and level of education of the participants, findings may not necessarily be reflective of individuals with different levels of education, for example.

Lastly, the fact that the sample consisted of only university students also limits the study, as these students had access to resources such as mobile devices, laptops, and the internet, which might not be the case for all.

8.3 Implications of the study

As previously mentioned, there is currently limited literature on PE and its effectiveness, feasibility, and acceptability in LMICs such as South Africa (Booyesen & Kagee, 2020). The present study demonstrates how valuable intervention research is in terms of ameliorating PTSD in a LMIC, such as South Africa. It serves as a basis and blueprint to reduce the treatment gap of PTSD in LMICs by using online platforms such as Zoom. This is valuable as there is limited data about the use of PE, and especially online PE, in LMICs.

Thus, the present study demonstrates, from a practical point, how a manualized exposure treatment was implemented, and what challenges arose. The intervention was deemed to be effective and feasible. Yet, there were a few challenges that hindered the feasibility of the intervention, and clinicians need to be mindful of these to enhance treatment and its outcomes.

8.4 Treatment implications

Although online PE has been shown to be effective and relatively feasible, there remains a need for further evaluation and implementation thereof, especially in LMICs like South Africa. The findings of the present study provide preliminary about the implementation of online PE

amongst a student sample in a LMIC, which is insecure and resource scarce. Despite contextual factors and other barriers which impacted on the intervention stage of the present study, treatment still led to positive outcomes.

It also holds benefit to the three participants who received 8 free online PE sessions, which inevitably had a positive global impact on their quality of life.

8.5 Reflections as a therapist

Upon reflecting on my role as not only a researcher, but a therapist too, there are a few things worth mentioning.

8.5.1 Context and PE components: In-vivo exposure

First, The HPCSA highlights that Counselling Psychologists should demonstrate an “understanding that historical, social and contextual factors influence human development and functioning across multiple life domains” (HPCSA, 2019, p.6). During the intervention, this is something I continuously had to remind myself of, especially when collaborating with the participants to choose in-vivo homework activities, for example. Participant C, for example, avoided walking anywhere in town alone due to the fear of bumping into the perpetrator who sexually assaulted her. Due to the high crime rates in South Africa, we could not select taking a walk alone at night, for example, as an in-vivo activity. Rather, we collaboratively decided that she would do so during the daytime in areas in town that were regarded as relatively safe (for example, where campus security was visible).

8.5.2 Counselling Psychology and Evidence Based Practice (EBP)

Secondly, there is a clear call for action by South African psychology to move towards a more relevant, accessible, and inclusive discipline that emphasizes multi-cultural competency and sensitivity. In my opinion, as aligned with that of Young, Bantjes and Kagee (2016), the discipline of counselling psychology has demonstrated significant ability to make meaningful contributions in addressing the mental health care needs within South Africa. Practitioners in

this discipline, rooted in philosophy and tradition, can adopt roles in which they are able to advocate for and engage in community level interventions and contribute to policy formation and South African literature. Therefore, it is hoped that the present research study can be used to advocate for more EBP trauma treatments within the South African context, as well as other LMICs.

8.5.3 Therapeutic relationships

Furthermore, the therapeutic relationships need to be highlighted. I concur with Norcross and Wampold (2019) who posit that therapeutic relationships are equally important as the chosen treatment method. Flückiger, Del Re, Wampold, and Horvath (2018) furthermore postulate that a strong therapeutic relationship is a strong predictor of the success or lack thereof in online teletherapy as it is in face-to-face therapy. An authentic relationship was formed with each participant, despite it being on an online platform. As one participant put it, although “not conventional, it works.” These relationships were characterised by trust, transparency, honesty, and respect, amongst other. This allowed for a safe and conducive “therapy space.”

In my experience, it was deemed valuable to have had psychological training and to be familiar with the basic principles of counselling. This includes person-centred qualities such as empathy, unconditional positive regards, and congruence (Rogers, 1951). Applying and demonstrating these skills during sessions proved to be invaluable and once more contributed to the therapeutic alliances established with participants.

In addition to the abovementioned, I found ongoing personal therapy to be very helpful whilst undertaking this study. While being a therapist is greatly rewarding, it can take a toll from time to time. Again, this facilitated in maintaining conducive relationships with participants as I took care of myself and my emotional needs too.

8.5.4 Imaginal exposure

Conducting the imaginal exposure was challenging at first, but I gradually became more at ease. It was difficult to witness how distressed the participants became but I relied on the therapeutic relationship and other techniques to support them. In order to contain participants when they showed increased levels of distress, I would re-explain the rationale behind and necessity of in-vivo exposure. This furthermore served as continuous psychoeducation and seemed to instil more confidence in the process. In addition, this also helped me “trust the process” as I knew that it would be in the participants’ best interests to engage in in-vivo exposure to facilitate processing and habituating (Foa & Kozak, 1986; Foa et al., 2019). Thus, I maintained a degree of flexibility in order to support participants’ individually, without deflecting too much from the structure of PE treatment.

Interestingly, my physiological and emotional responses became less intense as sessions progressed and I was exposed to the participants’ trauma narratives session after session. Perhaps, this is reflective of a combination of habituation and an increase in my confidence as an online PE therapist.

Overall, participants engaged well in in-vivo exposure. However, Participant B had difficulty doing so as we proceeded with treatment. She was often so overwhelmed by other issues she was facing that little space was left for trauma work.

8.5.5 Maintaining the session structure

It was relatively easy to maintain the outlined session structure. Apart from “checking-in” with clients, before the formal commencement of sessions, setting an agenda for each session was deemed to be helpful in doing so. This allowed the participants to know what to expect and allowed me to utilize and manage the time available for sessions wisely.

Again, overall, I was able to do what I had to do for each session with Participant A and Participant C. However, this posed as quite a challenge with Participant B who was not always

in the right frame of mind to engage in trauma work and resulted in a few sessions revolving around other issues.

Flexibility was deemed to be helpful and necessary, as it allowed for a deeper exploration of emotional experiences, allowing for a more individualistic approach. Hence, although structure is important, I found it conducive to check-in with participants and be relatively flexible as it allowed for a more authentic approach.

8.5.6 The usefulness of online PE in a SA setting

In my opinion, manualized treatment like online PE has a useful role in SA as it can serve as a means to bridge the mental health gap that exists, especially in terms of limited access to mental healthcare services on campuses, which affects many South African students (Bantjes et al., 2020; Brown, 2018).

However, progress within this regard will only be possible through state funding that allows counselling psychologists to break free from the confines of private practice, an already saturated market, and make impactful changes within various communities, challenging and changing the historically elitist nature of access to mental health services within our country.

8.6 Recommendations to clinicians and students

There are a few related recommendations stemming from the present study. First, it is of utmost to ensure that the chosen in-vivo homework activities are safe and realistic, especially given the high crime levels in South Africa (Williams et al., 2007). Collaborative and continuous assessment of the safety of these activities is recommended.

Due to the high dropout rates commonly associated with PE (Zwetzig, Koch, Blount, Graham, & Peterson, 2021), it is recommended that a strong therapeutic relationship with each participant should be established. According to Norcross and Wampold (2019), the therapeutic relationship occupies a prominent and evidence-based place for the psychological treatment of trauma. This was echoed by Participant C in one of our last sessions when she emphasized how

big of a factor our therapeutic relationship was. According to Ellis, Simola, Brown and Cook (2018), numerous studies have found that the therapeutic relationship is predictive of the outcome of treatment. Thus, it can be hypothesized that this was a factor in the symptom reduction for Participant C.

8.7 Value of the study

The present study contributes to the body of literature on evidence-based practices in South African psychology, with a specific focus on treating PTSD on an online platform. It highlights the processes and challenges relevant to implementing online PE with a student population in a LMIC, i.e., South Africa, which is characterized by ongoing adversity and a high prevalence of trauma exposure. To the researcher's knowledge, the study is the first to investigate and explore the effectiveness and feasibility of online PE for students in South Africa.

Alongside similar studies, such as those conducted by Franklin et al., 2017 (n = 27), Tuerk et al., 2010 (n = 12), and Gros, Yoder, Tuerk, Lozano and Acierno (2011) (n = 89), the study demonstrated that online PE is an effective and feasible form of intervention for PTSD.

Furthermore, the study comments on the mental health gap and attempts to contribute to how processes, such as online PE, can enhance the amelioration of PTSD in South Africa and other LMICs. Thus, not only has the study contributed to the scholarly community of the treatment of PTSD in South Africa, but it also explored whether it is effective and feasible to do so on an online platform. This may allow other mental health practitioners to reflect on their current interventions.

8.8 Conclusion

Despite the abovementioned challenges, it is argued that the study has contributed to the understanding of the effectiveness and feasibility of online PE amongst a student population in South Africa. Not only has the study highlighted some of the challenges of online PE in South Africa, but also the potential positive outcomes related to treatment. Overall, the study found

online PE to be an effective treatment intervention to implement in a South African context amongst a student population. However, online PE within a South African context presented some issues related to its feasibility. However, overall, these findings are particularly relevant to the South African context, as traumatic stress is deeply rooted within its society. It is hoped that the study will inspire further research in this area.

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Appendices

Appendix A

Client Information Sheet



You are kindly requested to participate in a research study conducted by Maryna Slabbert, student/intern counselling psychologist at Rhodes University. The findings of the study will contribute to a master's mini thesis, academic publication(s), and conference presentation(s).

The data collected in the project may also be used in future research projects.

You were selected as a possible participant in this study as you sought counselling for traumatic stress at the Rhodes University Student Counselling Centre.

1. PURPOSE OF THE STUDY

The purpose of the study is to investigate the effectiveness and feasibility of online prolonged exposure therapy for traumatic stress among university students.

2. PROCEDURES

Should you wish to participate in this study, you will be expected to complete a brief screening questionnaire to determine whether you meet the inclusion criteria for the study. Should you meet the inclusion criteria, you will be expected to attend eight weekly online sessions of between 60 minutes and 90 minutes. Before the commencement of the initial session, and after completion of the final session, you will be expected to complete some assessment measures. All sessions will be recorded and reviewed by the research supervisor to ensure that the researcher adheres to treatment guidelines.

3. POTENTIAL RISKS AND DISCOMFORTS

The research obtained ethical clearance by the Rhodes University Research Projects and Ethics Review Committee (RPERC), the Rhodes University Ethics Standards Committee (RUESC), and permission from Counselling Centre Manager, Director: Student affairs and Registrar.

The study will prioritise the rights and dignity of all clients involved.

You have the right to decline and/or exit the study at any time. Should you decide to opt out of the study, you may still use the services of the counselling centre. Furthermore, should you decide to decline or withdraw from the study, you will not be treated unfairly. Lastly, you will be allowed to continue treatment at the counselling centre based on your psychological functioning.

4. POTENTIAL BENEFITS TO PARTICIPANTS AND/OR TO SOCIETY

You will receive eight sessions of therapy, which is based on an evidence-based psychological treatment for trauma. You will also have an opportunity to talk about how you experienced the therapy. The research will contribute to the literature on evidence-based practices in South African psychology, with a specific focus on treating traumatic stress on an online platform.

5. CONFIDENTIALITY

Any information that is obtained during the course of the study, and that can be identified with you, will remain confidential and will be disclosed only with your permission or as required by law. Your identity will remain anonymous.

Confidentiality will be maintained by means of removing personal details from documents and by using a participant number for each research participant.

All paper documents will be safeguarded at the personal office of the researcher, and electronic data will be encrypted and stored in Dropbox. These storage spaces will have controlled access.

The researcher and research supervisor will have access to the Dropbox stored data.

Counselling sessions will be video recorded. The researcher will oversee that these recordings are securely stored on a password protected Dropbox account. The information will only be accessible to the researcher (Maryna Slabbert) and research supervisor (Mr. Duane Booysen). You have the right to listen to, or to request a copy of the video recordings.

The results of the research will be prepared for a master's thesis, academic publication, and presentation at conferences.

6. PARTICIPATION AND WITHDRAWAL

Should you agree to take part in this study, you may withdraw at any time without any consequences. The researcher may withdraw you from this study if circumstances arise which warrant doing so. You may be asked to withdraw from the study if your well-being is at risk during the study, or if you are a risk to any of the staff at the counselling centre.

7. IDENTIFICATION OF INVESTIGATORS

Should you have any questions or concerns regarding the research, please feel free to contact Maryna Slabbert (Researcher) on 082 295 2350 or traumaresearch2021@gmail.com or Mr. Duane Booysen (Supervisor) on 046 603 8507 / d.booyesen@ru.ac.za.

8. RIGHTS OF RESEARCH PARTICIPANTS

You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights, or remedies because of your participation in this research study. Kindly address any questions regarding your rights as a research participant, contact Professor Arthur Webb at chertl-admin@ru.ac.za or Mr. Siyanda Manqele at s.manqele@ru.ac.za or 0466037727.

Kind regards,

Maryna Slabbert

Appendix B

Information About Teletherapy



This document provides information about online therapy (teletherapy). This will allow you to decide whether you want to consent to therapy using telecommunication technologies.

Benefits and limitations

Online therapy is a convenient alternative to traditional face-to-face therapy and has been shown to be effective in helping with several difficulties. However, online therapy has limitations. There is a lack of “personal” face-to-face interaction, which can make therapy less of a relational experience. Like most forms of psychotherapy, online therapy can make you feel worse before you start feeling better and the changes you experience may create conflict in your close relationships.

Technological requirements and competences

To engage in online therapy, you will require a device that can connect to the internet and be able to install and use the necessary software (i.e. Zoom). You will also need an email account. A reliable high-speed internet connection is also required. Please be aware that online therapy may utilise significant amounts of data, especially if video is used.

Procedures for technical difficulties

Disruptions can occur when using the internet to communicate. Should the communication be disrupted, your psychologist will immediately attempt to reconnect and resume the session. However, if they are repeatedly unable to reconnect for 10 minutes, the session will be rescheduled (via email) to a later date once connectivity is restored.

Confidentiality

Online therapy utilises the internet for the transmission of personal information and therefore there are increased risks to confidentiality, and it cannot be guaranteed. To protect your confidentiality, services that provide encryption to communicate will be used. Please consider password protecting the devices you use and installing antivirus software to prevent access by third parties. Any information shared with your psychologist will remain confidential. However, aspects of this information may be shared with the student psychologist's supervisor for training purposes. Specific written permission will be required from you, the client, before information be released to other professionals. Importantly, please be aware that if there is a significant risk of you seriously harming yourself or another person, your psychologist is obliged to act to prevent potential harm, which may involve giving information to another party. You will always be informed when this happens. Please ensure that you are in a private environment when engaging in online therapy so that interruptions can be avoided.

Crisis management

It is important to note that online therapy is not an appropriate medium for persons that are seriously depressed, have serious substance dependence, or are experiencing intense suicidal or homicidal thoughts. Seeing a mental health professional face-to-face is recommended in these situations. It can be difficult to deal with emergency crisis situations when using online therapy as you and your psychologist are often in separate locations. Your psychologist will therefore ask you to provide the contact details of two local contacts near to you (a family member or friend) and a local medical practitioner who can be contacted in the case of an emergency. If you are in crisis and there is a disruption while you and your psychologist are engaging in online therapy, you should immediately attempt to contact your psychologist or call suicide helpline on 0800 456 789 or 0800 567 567.

GUIDELINES FOR USING ZOOM

The telecommunication platform which will be used for therapy is called Zoom. This platform is secure and offers you the opportunity to engage in therapy from the safety and comfort of your own home. Your psychologist will send you a calendar invitation which will have the details of your weekly appointment as well as a link which, when clicked, will take you to a virtual “meeting room”. This calendar invitation and Zoom link will be emailed to you.

What do I need to use Zoom?

You can use Zoom on a laptop, smartphone, or tablet. In addition to one of these, you need an internet connection (mobile data or Wi-Fi/fibre connection).

How do I access Zoom?

Regardless of what device you choose to use (laptop, smartphone, tablet), clicking on the link that your psychologist sends you, will open Zoom in your web browser. It will give you a chance to sign up (using an email address and password) after which you can enter the virtual consultation room. However, it may be more convenient for you to download the Zoom application beforehand instead. You can download the application from the Zoom website or from Play Store for android smartphones/devices. Once you have downloaded the application, you can sign up and then every time you click on the link sent to you, it will automatically open the meeting in your application. The following is a link to a helpful YouTube video explaining the process: <https://youtu.be/hIkCmbvAHQQ>.

Emulating the “usual” therapy space

Please consider the following when choosing the place from which to have your sessions:

- **Privacy**

During online sessions, please ensure that you are in a private space that allows you to feel safe to share what you would like to share with your psychologist. It is important that you do not get disrupted during sessions. Please make use of earphones.

- **Access to internet/power**

Please ensure that you are connected to Wi-Fi/fibre or have sufficient data to sustain the length of the session. Please also ensure that your device is plugged into a power source or is fully charged to sustain the full length of the session.

- **Access to supportive material**

You may choose to have some tissues and a glass of water nearby in case they come in handy during a session. If you would like to have a pen and paper handy to doodle on during the session, please feel free to do so. Some individuals find prolonged eye contact overwhelming, and this might offer some space.

FREQUENTLY ASKED QUESTIONS

What should be in the video shot?

It is helpful for your psychologist to see not just your face, but your upper body as well. Please refrain from sitting on your bed during the session.

What do I do if I am unable to connect to the meeting?

Please email your psychologist and they will try to assist you.

What if connectivity is lost during the session?

Try to reconnect to the meeting room again - try this for up to 10 minutes. If unsuccessful, your psychologist will email you to set up an alternative meeting.

APPENDIX C

Client Screening Questionnaire

Date: _____

Name of screener: _____

Name of prospective participant: _____

Referral source: _____

Please complete the following brief questionnaire to be considered for participation in the Online Exposure Therapy research study.

SECTION A			
Item	Question	Yes	No
1	Are you enrolled as a student at Rhodes University?		
2	Are you at least 18 years old?		
3	Have you directly witnessed or experienced a traumatic at least one month prior to today?		
4	Can you speak Afrikaans and/or English?		

SECTION B			
Item	Question	Yes	No
1	Do you have current comorbid disorders of Schizophrenia or related disorders?		
2	Do you have Bipolar Mood Disorder?		
3	Have you suffered a Traumatic Brain Injury?		
4	Do you have any neurodevelopmental disorders?		
5	Do you present with suicidal or homicidal intent?		

Thank you.

Appendix D

PSSI-5

TRAUMA SCREEN

Many people are exposed to a disturbing or traumatic event at some point in their lives. These experiences can happen in any of the following ways:

1. Directly experiencing the event
2. Witnessing the event
3. Learning that the event happened to a close family member or close friend
4. Experiencing repeated or intense exposure to distressing details of the event (e.g. emergency workers collecting human remains)

Examples of traumatic events include: natural disasters, accidents, sexual assaults, physical assaults, combat, childhood sexual abuse, torture, or life-threatening illness.

Have you experienced such an event?

- ☐ Yes
☐ No

Please briefly describe the experience which is the **most distressing and the most haunting for you currently**.

If you are unsure, briefly describe the experience anyway:

Did this event included:

- | | | |
|--|-----|----|
| a. Actual or threatened death? | Yes | No |
| b. Actual or threatened serious injury? | Yes | No |
| c. Actual or threatened sexual violation | Yes | No |

When did this event occur? _____

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Mental health researchers and clinicians may make copies of the measure for their own clinical and research use. Any other use is prohibited.

PSS-I-5

Questions should be about the most currently distressing trauma. Each item below should be asked in reference to the past month (if < 1 month since trauma, ask "Since the event..."). Probe all positive responses (e.g., "How often has this been happening?") following the instructions provided in the PSS-I-5 manual.

0	1	2	3	4
Not at all	Once a week or less/a little	2 to 3 times a week/somewhat	4 to 5 times a week/very much	6 or more times a week/severe

RE-EXPERIENCING (need one): [probe, then quantify]

- ___ 1. Have you had unwanted distressing memories about the trauma?
- ___ 2. Have you been having bad dreams or nightmares related to the trauma?
- ___ 3. Have you had the experience of feeling as if the trauma were actually happening again?
- ___ 4. Have you been very EMOTIONALLY upset when reminded of the trauma?
- ___ 5. Have you had PHYSICAL reactions when reminded of the trauma (e.g., sweating, heart racing)?

AVOIDANCE (Need one): [probe, then qualify]

- ___ 6. Have you been making efforts to avoid thoughts or feelings related to the trauma?
- ___ 7. Have you been making efforts to avoid activities, situations, or places that remind you of the trauma or that feel more dangerous since the trauma?

CHANGES IN COGNITION AND MOOD (Need two): [probe, then qualify]

- ___ 8. Are there any important parts of the trauma that you cannot remember?
- ___ 9. Have you been viewing yourself, others, or the world in a more negative way (e.g. "I can't trust people," "I'm a weak person")?
- ___ 10. Have you blamed yourself for the trauma or for what happened afterwards? Have you blamed others that did not directly cause the event for the trauma or what happened afterwards?
- ___ 11. Have you had intense negative feelings such as fear, horror, anger, guilt or shame?
- ___ 12. Have you lost interest in activities you used to do?
- ___ 13. Have you felt detached or cut off from others?
- ___ 14. Have you had difficulty experiencing positive feelings?

PSS-I-5

Questions should be about the most currently distressing trauma. Each item below should be asked in reference to the past month (if < 1 month since trauma, ask "Since the event..."). Probe all positive responses (e.g., "How often has this been happening?") following the instructions provided in the PSS-I-5 manual.

0	1	2	3	4
Not at all	Once a week or less/a little	2 to 3 times a week/somewhat	4 to 5 times a week/very much	6 or more times a week/severe

RE-EXPERIENCING (need one): [probe, then quantify]

- ___ 1. Have you had unwanted distressing memories about the trauma?
- ___ 2. Have you been having bad dreams or nightmares related to the trauma?
- ___ 3. Have you had the experience of feeling as if the trauma were actually happening again?
- ___ 4. Have you been very EMOTIONALLY upset when reminded of the trauma?
- ___ 5. Have you had PHYSICAL reactions when reminded of the trauma (e.g., sweating, heart racing)?

AVOIDANCE (Need one): [probe, then qualify]

- ___ 6. Have you been making efforts to avoid thoughts or feelings related to the trauma?
- ___ 7. Have you been making efforts to avoid activities, situations, or places that remind you of the trauma or that feel more dangerous since the trauma?

CHANGES IN COGNITION AND MOOD (Need two): [probe, then qualify]

- ___ 8. Are there any important parts of the trauma that you cannot remember?
- ___ 9. Have you been viewing yourself, others, or the world in a more negative way (e.g. "I can't trust people," "I'm a weak person")?
- ___ 10. Have you blamed yourself for the trauma or for what happened afterwards? Have you blamed others that did not directly cause the event for the trauma or what happened afterwards?
- ___ 11. Have you had intense negative feelings such as fear, horror, anger, guilt or shame?
- ___ 12. Have you lost interest in activities you used to do?
- ___ 13. Have you felt detached or cut off from others?
- ___ 14. Have you had difficulty experiencing positive feelings?

Appendix E

PHQ-9

PATIENT HEALTH QUESTIONNAIRE (PHQ-9)

NAME: _____ DATE: _____

Over the last 2 weeks, how often have you been
bothered by any of the following problems?
(use "✓" to indicate your answer)

	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself—or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed. Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead, or of hurting yourself	0	1	2	3

add columns + +

(Healthcare professional: For interpretation of TOTAL, TOTAL:
please refer to accompanying scoring card).

10. If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?	Not difficult at all _____
	Somewhat difficult _____
	Very difficult _____
	Extremely difficult _____

Appendix F

PCL-5

Appendix G

RU-HREC



Rhodes University Human Research Ethics Committee

PO Box 94, Makhanda, 6140, South Africa

t: +27 (0) 46 603 7727

f: +27 (0) 46 603 8822

e: ethics-committee@ru.ac.za

NHREC Registration number: RC-241114-045

<https://www.ru.ac.za/researchgateway/ethics/>

13 June 2022

Ms Maryna Slabbert

Email: g21s93k1@campus.ru.ac.za

Review Reference: 2021-4899-6001

Dear Maryna Slabbert

Title: The effectiveness and feasibility of online prolonged exposure therapy for traumatic stress among university students

Researcher: Miss Maryna Slabbert

Supervisors: Mr Duane Booysse

This letter confirms that the above research proposal has been reviewed and **APPROVED** by the Rhodes University Human Research Ethics Committee (RU-HREC). Your Approval number is: 2021-4899-6001

Approval has been granted for 1 year. An annual progress report will be required in order to renew approval for an additional period. You will receive an email notifying you when the annual report is due.

Please ensure that the ethical standards committee is notified should any substantive change(s) be made, for whatever reason, during the research process. This includes changes in investigators. Please also ensure that a brief report is submitted to the ethics committee on the completion of the research. The purpose of this report is to indicate whether the research was conducted successfully, if any aspects could not be completed, or if any problems arose that the ethical standards committee should be aware of. If a thesis or dissertation arising from this research is submitted to the library's electronic theses and dissertations (ETD) repository, please notify the committee of the date of submission and/or any reference or cataloguing number allocated.

Sincerely,

Prof. Arthur Webb

Chair: Rhodes University Human Research Ethics Committee, RU-HREC

cc: Ms Danielle de Vos - Ethics Coordinator

Appendix H

IMPLEMENTATION MEASURES

Acceptability of Intervention Measure (AIM)

	Completely disagree	Disagree	Neither agree nor disagree	Agree	Completely agree
1. Prolonged Exposure Therapy meets my approval.	①	②	③	④	⑤
2. Prolonged Exposure Therapy is appealing to me.	①	②	③	④	⑤
3. I like Prolonged Exposure Therapy.	①	②	③	④	⑤
4. I welcome Prolonged Exposure Therapy.	①	②	③	④	⑤

Intervention Appropriateness Measure (IAM)

	Completely disagree	Disagree	Neither agree nor disagree	Agree	Completely agree
1. Prolonged Exposure Therapy seems fitting.	①	②	③	④	⑤
2. Prolonged Exposure Therapy seems suitable.	①	②	③	④	⑤
3. Prolonged Exposure Therapy seems applicable.	①	②	③	④	⑤
4. Prolonged Exposure Therapy seems like a good match.	①	②	③	④	⑤

Feasibility of Intervention Measure (FIM)

	Completely disagree	Disagree	Neither agree nor disagree	Agree	Completely agree
1. Prolonged Exposure Therapy seems implementable.	①	②	③	④	⑤
2. Prolonged Exposure Therapy seems possible.	①	②	③	④	⑤
3. Prolonged Exposure Therapy seems doable.	①	②	③	④	⑤
4. Prolonged Exposure Therapy seems easy to use.	①	②	③	④	⑤

Appendix I

Permission from Student Counselling Centre Manager



Counselling Centre
Steve Biko Building, Prince Alfred Street, Makhana, 6139, South Africa
PO Box 94, Makhana, 6140, South Africa
t: +27 (0) 46 603 7070
f: +27 (0) 46 603 7071
e: counsellingcentres@ru.ac.za
www.ru.ac.za

17 May 2021

Principal Investigator: Mr. Duane Booysen
Collaborators: Miss Maryna Slabbert
Psychology Department
Rhodes University
Grahamstown

Dear Ms Maryna Slabbert (Student number: 2159381)

Permission to conduct research (Review Reference: 2021-4899-6001)

Research topic: *"The effectiveness and feasibility of online prolonged exposure therapy for traumatic stress among university students"*

This letter confirms that the above research proposal has been reviewed by the Rhodes University – Manager Student Counselling Centre and been APPROVED.

Kind Regards

Christine Lewis
Manager: Counselling Centre

Appendix J

Approval from the Registrar



Counselling Centre
 Steve Biko Building, Prince Alfred Street, Makhana, 6139, South Africa
 PO Box 94, Makhana, 6140, South Africa
 t: +27 (0) 46 603 7070
 f: +27 (0) 46 603 7071
 e: counsellingcentre@ru.ac.za
 www.ru.ac.za

17 May 2021

Principal Investigator: Mr. Duane Booysen
 Collaborators: Miss Maryna Slabbert
 Psychology Department
 Rhodes University
 Grahamstown

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This letter confirms that the above research proposal has been reviewed by the Rhodes University – Manager Student Counselling Centre and been APPROVED.

Kind Regards

Christine Lewis
 Manager: Counselling Centre