Using peer specialists to reserve dropout from prolonged exposure therapy delivered in person or via telehealth for combat-related post-traumatic stress disorder

Melba A. Hernandez-Tejada

USING PEER SPECIALISTS TO REVERSE DROPOUT FROM PROLONGED EXPOSURE THERAPY DELIVERED IN PERSON OR VIA TELEHEALTH FOR COMBAT-RELATED POST-TRAUMATIC STRESS DISORDER

BY

MELBA A. HERNANDEZ-TEJADA

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Director: David Sánchez-Carracedo, PhD

Melba Hernandez-Tejada

David Sánchez Carracedo, PhD

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General Introduction

The following study aimed to address the issue of Veteran dropout from Prolonged Exposure (PE) therapy, one of the most effective evidence-based treatments for PTSD. PE typically produces long lasting positive results if treatment is actually completed. As such, the Veterans Health Administration (VHA) has invested extensive resources into research and practices to make this treatment available to the Veterans under VHA care. Unfortunately, little research and attention has been paid to reversing dropout from PE, which is not insignificant at about 30%. This is of particular concern for Veterans in the United States, who are more likely to suffer from PTSD than civilians.

A previous study by the author of the present thesis (Hernandez-Tejada, Zoller, Ruggiero, Kazley & Acierno, 2014) examined Veteran dropout from in person delivered and home-telehealth delivered PE. This study showed that, for in person delivered PE, logistics-related problems such as driving time to appointments, distance to the hospital, parking issues, and indirect cost (i.e., missed work) incurred through participation in therapy were related to dropout, whereas for those receiving PE via home telehealth, dropout related more specifically to treatment components themselves. In particular, participants in home telehealth delivered PE were more likely to report that in vivo exposure assignments were very uncomfortable, difficult, and almost intolerable, and noted that this was a factor leading to their attrition from treatment.

The following work describes a program to address dropout from PE that uses ‘peer specialists” (as they are called within the VHA) in a novel way, that is, directly during in vivo exposure assignments. Peer specialists have not been used in this manner before, and in fact such use has been prohibited. Instead, peers are used

primarily to encourage other Veterans to obtain treatment, and to help Veterans navigate the VHA hospital system. Thus, a major innovation of the present work is elevating the role of a trained peer to a central and key member of the treatment team.

The idea of using peers comes from a wide evidence base in favor of leveraging social support to enhance mental and physical health recovery. Through the development of this proposal, concepts related to PTSD, PE and peer support are discussed in the Background. Methods are discussed in section II. The manuscripts published in peer-reviewed journals are presented, as is a summary of the results, in section III, and finally the discussion is presented in section IV. This manuscript also includes the Appendices within which informed consent and all study instruments are given.

Abstract

Objective: the present study of United States military Veterans evaluated whether peers who had successfully completed Prolonged Exposure (PE) Therapy for combat-related Post-traumatic Stress Disorder (PTSD) could help other Veterans who had dropped out of treatment to both re-engage in, and complete PE by offering supportive encouragement directly during in vivo exposure homework exercises. *Methods*: The study sample was derived from two ongoing randomized controlled trials comparing PE delivered in person vs. PE delivered via home-based telehealth. All 82 PE dropouts from aforementioned trials were contacted and offered the opportunity to return to treatment, this time with the addition of a peer present during a limited number of in vivo exposure exercises. Measures included intent to re-engage in treatment, satisfaction with the program, and PTSD and depression outcomes. *Results*: of the 82 dropouts identified from the two trials, 29 (35,37%) agreed to re-engage in PE (delivered via the same treatment modality they had received prior to dropout, i.e., in person or telehealth). Participants receiving both in person and telehealth delivered PE were equally satisfied with their peer, and how the peer helped them to achieve the goals of the in vivo exposure exercises. Moreover, PTSD and depression symptoms were reduced in both in person and telehealth groups using peer support applied directly during in vivo exercises.

Resumen

Objectivo: el presente studio se llevó a cabo en ex-combatientes de las Fuerzas Militares de los Estados Unidos (EEUU), con el propósito de evaluar si aquellos que habían previamente culminado con éxito la Terapia de Exposición Prolongada (TEP) para el tratamiento del Trastorno de Estrés Post-traumático (TEPT) podían ayudar a otros ex-combatientes que habían abandonado el tratamiento a considerar la reinserción al tratamiento, brindándo apoyo durante los ejercicios de la fase de exposición in vivo de la TEP. *Método*: La muestra para este studio se derivó de dos ensayos clínicos controlados llevados a cabo en un Hospital de Veteranos en el sureste de EEUU en los cuales se estaba comparando la efectividad de el tipo de modalidad para llevar a cabo la TEP, bien por vía tradicional en persona o vía telesalud. 82 participantes que habían abandonado dichos ensayos clínicos fueron contactados con el propósito de ofrecer el regreso al tratamiento esta vez con la ayuda de otro ex-combatiente por un número limitado de ejercicios de exposición in vivo. Las medidas consideradas fueron: regreso al tratamiento, satisfacción con el programa, y resultados clínicos de depresión y TEPT. *Resultados*: de los 82 participantes que habían abandonado el tratamiento, 29 (35,36%) acordaron regresar al tratamiento (bajo la misma modalidad que habían previamente abandonado, es decir, en persona o telesalud). Dichos participantes tanto en persona como en telesalud expresaron su satisfacción con el acompañamiento durante las sesiones in vivo, en particular como sus compañeros los ayudaron a alcanzar los objetivos de dichas sesiones. Tanto los síntomas de depresión como de TEPT se redujeron en ambos grupos al final del tratamiento.

I. INTRODUCTION

1. Post-Traumatic Stress Disorder (PTSD): Definition, Prevalence and Risk Factors.

Definition of Post-Traumatic Stress Disorder (PTSD)

The Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-5), indicates that PTSD "…may result from exposure to a traumatic event such as actual or threatened death, serious injury or physical and sexual assault" (American Psychiatric Association, 2013). Exposure may be either direct, for example being present for natural disasters, engaged in combat and related situations, or being sexually victimized; or indirect, for example, by learning of the sudden traumatic death of a loved one in a car accident, or by witnessing traumatization of another person (which may contain aspects of both direct and indirect exposure). Following exposure to a traumatic event, most individuals evince symptoms of distress, autonomic hyperarousal, re-experiencing (e.g., intrusive ideation, nightmares), and avoidance of stimuli or situations that in some way remind of the traumatic event.

If these symptoms (see below for specific symptom categories) persist for longer than one month, a diagnosis of PTSD may be made (American Psychiatric Association, 2013). A unique aspect of this disorder compared to other mental health diagnoses is that it requires a specific environmental event, and thus is not simply triggered or manifest through a physiological or medical condition, (e.g. Panic Disorder or Major Depressive Disorder).

DSM Description of symptomatology

In this section, the DSM-IV, rather than DSM-5 PTSD diagnosis is described

because virtually all of the published contemporary research on PTSD, including ongoing and recently completed trials such as those providing data for this project, used DSM-IV. The major difference between DSM-IV and DSM-5 is in the addition a fourth cluster of symptoms (see below).

The three DSM-IV symptom clusters that comprise a PTSD diagnosis include: *re-experiencing* (e.g., spontaneous memories of the traumatic event, recurrent dreams, flashbacks or other forms of psychological distress); *avoidance* (e.g., distressing memories, thoughts, feelings or external reminders of the traumatic event); and *arousal* (e.g., aggressive, reckless or self-destructive behavior, sleep disturbances, hyper-vigilance or related problems). Note that DSM-V differs from DSM-IV in that the *arousal* cluster is separated into: (a) *negative alterations in cognition and mood* (e.g., persistent and distorted blame of self or others; and, persistent negative emotional state); and (b) a new fourth symptom cluster of *alterations in arousal and reactivity* (e.g., reckless or destructive behavior). Both versions of DSM maintain that the diagnosis is established when the symptomatology is present after at least one month from the point of traumatic event exposure, and persist for at least a 4 week period (American Psychiatric Association, 2013).

Types of Traumatic Events and Associated Factors

There are several types of situations and events that are considered by their nature to be traumatic and likely to result in PTSD for significant proportions of those exposed. Most commonly, events such as natural disasters causing widespread destruction of property and infrastructure, rape, accidents involving significant physical harm such as car accidents, terrorism, and war/combat trigger fear responses (i.e., ‘fight

or flight) that, when persisting may become PTSD. The majority of individuals who have been exposed to a traumatic event recover, although they may show symptoms of PTSD during initial weeks (hence the requirement that at least a month has elapsed since trauma exposure before the diagnosis can be made) (National Center for PTSD, 2016). However, about a third of those exposed to trauma develop symptoms that persist and over time becoming chronic PTSD (National Collaborating Centre for Mental Health, 2005).

Among active duty military personnel and Veterans, prevalence of PTSD may vary depending on the nature of exposure and the role in which the Veteran served, such as active duty deployment overseas to war zone vs. non-deployment; combat vs. logistical support; gender (military sexual trauma among women); armed forces (air force exposure differs from navy, army) and war theatre (Vietnam, Operation Iraqi Freedom: OIF; Operation Enduring Freedom: OEF. Operation New Dawn: OND, and Persian Gulf) (Gradus, 2013). Higher levels of direct and/or repeated exposure to physical injury and violence, include witnessing injury, death and dismemberment are associated with higher prevalence and intensity of PTSD (Litz, & Schlenger, 2009).

Specific situations related to military service and modern warfare are well captured by Reeves (2007) when discussing the diagnosis and management of PTSD in Veterans and are presented below:

- *"Combat exposure: firing weapons and being fired upon; injury or loss of life; destruction of villages and refugees; exposure to sounds, sights and smells of death."*
- *"Life-threatening events involving fear and sustained anticipatory anxiety about exposure to combat."*

- *"Concerns and fears related to imminent exposure to biological, chemical and radiological weapons and its long-term health effects."*
- *"Terrorist tactics (civilian suicide bombers); Potential physical and emotional abuse and execution when captured by enemy combatants who have indicated they will not follow Geneva Convention rules*."
- *"Living and working conditions that diminish one's ability to cope with trauma such as sleep deprivation and dramatically unfamiliar or exhausting environments."*
- *"Domestic impact of deployment related factors affecting one's career, family and other personal issues increasing basal stress levels and reducing ability to cope with traumatic stress events."*
- *"Uncertainty of deployment duration."*
- *"Potential discrimination or ethnocultural stressors for those of minority groups."*
- *"Sexual and gender harassment, an event particularly common in women in the military."*

Prevalence of PSTD

According to World Health Organization (WHO, 2013) the prevalence of PTSD is around 3.6% of the world's population, and around 6.8% in adults from the U.S. Prevalence is higher in some sub-groups due to the nature of the traumatic events to which they are more likely to be exposed. For instance, Veterans of war are more likely than general population to suffer from PTSD, as are war refugees. Moreover, different types of exposure are more or less likely to result in PTSD, for example: witnessing violence (21.8%), experiencing interpersonal violence (18.8%), accidents (17.7%), exposure to war (16.2%) (WHO, 2013).

PTSD prevalence in Veterans specific to war theater has also been studied. In the United States an estimated 18-20% of combat Veterans overall are diagnosed with PTSD. With respect to the largest group of Veterans (i.e., Vietnam Veterans), lifetime prevalence was first estimated at 30.9% for men and 26.9% for women (Kulka et al., 1990), but more recent studies placed lifetime prevalence for Vietnam Veteran men at 15.2%, and women at 20.1% (Magruder et al., 2015; Marmar et al., 2015; Thompson, Gottersman, & Zalewski, 2006). For Persian Gulf War Veterans, prevalence is estimated to be 10.1% (Kang, Natelson, Mahan, Lee, & Murphy, 2003). A recent meta-analysis estimated PTSD prevalence for Operation Enduring Freedom/Operation Iraqi Freedom (OEF/OIF) to be about 23% (Fulton et al., 2015).

Other PTSD Impacts: Cost and Health Care Utilization in Military Personnel.

The economic burden associated with PTSD is quite high. The U.S. cost of treating PTSD and related conditions, and its impact on the functioning of an individual (e.g., ability to return back to work) is projected to be more than 6.2 billion dollars, and this refers to only during the first two years after return from deployment (Gates et al., 2012). PTSD sufferers with comorbid conditions, in particular depression, tend to use higher levels of outpatient mental health services (approximately 25% more) and in 2009 outpatient care was $1,399 higher per patient, per year for Veterans with PTSD, with associated increased pharmacy costs (Chan, Cheadle, Reiber, Unützer, & Chaney, 2009).

2. Prolonged Exposure: An Evidence-Based Treatment for PTSD

Reduction of human suffering and concomitant mental health service utilization

by those with PTSD can typically be achieved when evidence based treatments are offered and completed (Foa, Rothbaum, Riggs, & Murdock, 1991; Foa et al., 2005; Karlin et al., 2010; Karlin & Agarwal, 2013; McLean & Foa, 2013; Powers et al., 2010; Schnurr & Friedman, 2008). Watts et al. (2013) noted that the most effective treatments for PTSD have been developed in the last 20-30 years, and those supported by the most scientific evidence are the Cognitive-Behavioral therapies (CBT) such as PE and Cognitive Processing Therapy (CPT). Specifically, the Institute of Medicine (IOM, 2007) and Departments of Defense (DoD) and Veterans Affairs (VA) independently assembled teams of experts who reviewed research and summarized guidelines that identified these two therapies (Reeves, 2007; Schnurr & Friedman, 2008) as PTSD treatments with the most replicated support for use with Veterans. The most current review of evidence for PTSD treatment effectiveness comes from the American Psychological Association (APA, 2017), which also cites PE and CPT as the therapies with the greatest support. Pharmacotherapy, specifically Selective Serotonin Reuptake Inhibitors (SSRIs), has also been used to ameliorate symptoms of PTSD, but effect sizes of medication-based treatments are smaller than those produced by CBT, and in fact, the evidence is limited to fluoxetine, paroxetine, sertraline, and venlafaxine; and insufficient for risperidone and topiramate (APA, 2017).

Prolonged Exposure Therapy

PE was developed by Dr. Edna Foa and colleagues, and is based emotional processing theory, a conceptualization of acquired anxiety outlined by Foa and Kozak (1986). This theory proposes that learned pathological cognitive fear structures underlie anxiety disorders such as PTSD (McLean, Asnaani, & Foa, 2015). Pathological fear

structures differ from normal fear structures in that they *"involve excessive response elements and resistance to modification"* and the associations among the different elements do not accurately represent reality (Rauch, & Foa, 2006). The focus of PE therapy is to help trauma survivors to emotionally process their traumatic memories and therefore to reduce symptomatology of PTSD by recreating, in graded fashion, exposure to the traumatic event, both in imagination and in vivo. Gradual exposure to corrective information via the confrontation of (i.e., exposure to) conditioned trauma-related stimuli within a safe and therapeutic environment results in a competing and antithetical memory structure that inhibits the conditioned fear response. In other words, by recreating the traumatic situation in a realistically safe forum (e.g., the therapy session; a crowded, but safe market resembling the site of the original trauma), a corrective processing of the experience can occur. Learning theorists, including Foa, also include habituation to trauma cues (or perhaps more accurately, extinction of the learned fear response) as a corresponding mechanism of therapeutic change.

Reprocessing and extinction are achieved by asking the client to repeatedly recall and recount memories in great detail and in present tense, first person as if they are happening now (i.e., imaginal exposure), and to expose themselves to situations that resemble the traumatic event, but are realistically safe (i.e., in vivo exposure). PE therapy as applied to PTSD allows patients to confront their fears in a safe, yet sufficiently anxiety provoking forum to promote corrective processing and learning (Foa, Chrestman, & Gilboa-Schechtman, 2009). Such repeated exposure allows PTSD symptom responses to conditioned stimuli to become extinguished, with concomitant

emotional processing of traumatic memories, leading to less pathological cognitive fear structures (Foa & Kozak, 1986).

Prolonged Exposure: The Evidence Base

As mentioned, PE has consistent support for its efficacy in treating PTSD (De Angelis, 2008; Institute of Medicine, 2007). Powers, Halpern, Ferenschak, Gillihan, and Foa (2010) performed a meta-analytic review of 13 randomized control trials involving 658 participants of PE for PTSD. Results indicated that PE was more effective than both no-treatment control, and supportive and traditional psychological comparison treatments (i.e., counseling, relaxation, present centered therapy, time limited psychodynamic therapy). The effects of PE were also longer lasting compared to other non-exposure based treatments. Overall, meta-analytic results indicated that when therapists used PE, they could expect their patients to fare better than 86% of patients treated with other types of therapy (Effect size Hedges's g=1.08), a finding particularly relevant to practitioners and administrators in settings such as the VHA, the largest single provider in the U.S. healthcare system, and a setting where decisions regarding infrastructure investment and policy reflect billions of dollars of expenditures.

Considering individual studies, several well-designed randomized controlled trials support PE for PTSD. Foa et al. (1991) studied 45 rape victims, and found PE superior to stress inoculation training (SIT), supportive counseling, or wait-list on PTSD outcome measures. Foa et al. (1999) conducted a second study with 97 victims of interpersonal violence, comparing PE to SIT, and to a PE/SIT combination condition, as well as a fourth wait-list condition. Participants in all three treatment conditions experienced greater reductions in PTSD and depressive symptoms compared to wait-list, both at

post-treatment and at 1-year follow-up. However, PE alone was superior to the other two intervention conditions on several additional psychopathology measures. In a later study, Foa et al., (2005) compared PE *vs.* PE plus cognitive restructuring (PE/CR) *vs.* a wait-list comparison group. Participants were 179 victims of interpersonal violence. PE and PE/CR produced greater reductions in PTSD and depressive symptoms relative to comparisons at post-treatment and 1-year follow-up, with no clear benefit of the added CR components. PE also decreases other traumatic stress-related problems such as depression (Foa et al., 1991; 1999; 2005), anger (Cahill, Rauch, Hembree, & Foa, 2003), and guilt (Resick, Nishith, Weaver, Astin, & Feuer, 2002; Stapleton, Taylor, & Asmundson, 2006).

In Veterans, the evidence is extensive. For example, Schnurr et al. (2007) conducted a randomized controlled effectiveness study comparing female Veterans who received PE *vs.* Present-Centered Therapy. Compared to those assigned to the Present Centered Therapy condition, female Veterans who received PE experienced greater reduction of PTSD symptoms, were more likely to show symptom remission and lose their PTSD diagnosis. Rauch et al. (2009) presented clinical treatment data from Veterans with PTSD and determined PE is effective in reducing such symptoms. Clinical significant reductions were also achieved in large samples of Veterans by Eftekhari et al. (2013), and Goodson, Lefkowitz, Helstrom and Gawrysiak (2013).

PE has also been studied with respect to its effects on health care use in Veterans. Meyers et al. (2013) reported on a study of 70 Veterans receiving PE and CPT therapies for PTSD. Veterans receiving one of these evidence-based treatments used significantly fewer mental health services following treatment, although the ambulatory

and emergency department use remained the same. Tuerk et al. (2013) also found significant reductions in mental health service utilization in a study of 60 Veterans receiving PE-based treatment for PTSD, but only for those who completed treatment. Thus, PE, when completed, appears to be an effective treatment for PTSD resulting from a variety of traumatic stressors, including combat, and is widely regarded by experts as a “best practice” approach to treating the disorder.

Structure of PE: Overview

PE is typically offered in individual sessions (therapist-client) over approximately 12 to 15 weekly sessions lasting 90 minutes each. The structure of the therapy includes: a) psycho-education regarding normal symptoms, course, and maintaining factors (e.g., avoidance), b) breathing retraining, and c) the core of the therapy, exposure to traumatic cues (reminders/triggers) in two forms: 1) via direct environmental exposure to stimuli that remind patients of the event (e.g., a crowds at home might resemble crowds in Iraq upon which a suicide bomber attacked), also known as *in vivo* exposure; and 2) through intense, highly detailed reliving of the traumatic in imagination event called imaginal exposure (McLean, Asnaani, & Foa, 2015).

In the first session the clinician educates the client or patient about the rationale for using PE, and reviews factors that might be maintaining PTSD symptoms. These factors most typically include avoidance of thoughts and images related to the trauma and avoidance trauma reminders. Patients are taught that avoidance is a problematic coping mechanism. Specifically, they are taught that although avoidance is effective in reducing the anxiety provoked by trauma-related thoughts, images and environmental reminders, it is only effective in the short term, because it prevents opportunities to

emotionally process the trauma memory, and extinguish its learned anxiety-eliciting effects, thereby maintaining PTSD symptoms through its short term reduction of symptoms. In other words, the patient 'learns' to avoid reminders of the traumatic event as a coping response to diminish anxiety. As such, avoidance is negative reinforced (i.e., the avoidance behavior reduces aversiveness and is thus more likely to occur in the future).

With respect to cognitions, a survivor of a traumatic event might begin to think that the world is an overwhelmingly dangerous place, and that future trauma can be expected. In the absence of corrective information via in vivo exposure (e.g., going to a crowded place where no suicide bombing attack actually happens), this worldview persists and avoidance is a natural safety behavior. PE therapy helps the individual to correct these erroneous thought processes during imaginal, and to a lesser extent, in vivo exposure through prompts provided to address these pathological perceptions or beliefs (McLean, Asaani, & Foa, 2015).

Structure of In Vivo Exposure Component of PE

An effective in vivo exposure protocol begins with deriving a comprehensive set of avoided situations that are reminders of the trauma, and thus avoided, despite their realistic safety. These are then 'graded' in a hierarchical fashion from least to most anxiety provoking (e.g., going to a potentially crowded, albeit perfectly safe market in the US that reminds the client of a market in Iraq when the market stalls are empty, then later in the day when they become more crowded, then when they are most crowded). Clients are assigned 'homework' where they engage in exposing themselves each day to hierarchy items, starting with the easier ones, and progressing to the more difficult

when anxiety levels begin to diminish. During the first week of in vivo exposure exercises, client and therapist select those items from the hierarchy that maximize the chance for successful exposure, thereby providing encouragement and self-efficacy, and increasing the likelihood of progressing toward the more difficult items in the hierarchy (Back et al., 2015). Note, in vivo exposure hierarchy items are supposed to cause anxiety, and the concept of anxiety as something to be confronted, not avoided, requires that the patient endure some discomfort. It is very much dependent upon the skill and art of the therapist to help the client both agree to, and then learn to endure significant, but not overwhelming anxiety during these exposure homework assignments.

One of the reasons for the effectiveness of PE is that the in vivo exposure components are personally tailored to each client. Moreover, some clients have specific symptoms and avoidances that are very well rooted into their daily life (e.g., a wife will do all the grocery shopping so that the husband does not need to expose himself to crowds, thereby inadvertently encouraging avoidance and incorporating such avoidance into their daily life) making the client unaware of them that the therapist needs to help reframing the behavior so the client recognize the avoidance patterns (Hembree, Rauch, & Foa, 2003).

Structure of the Imaginal Exposure Component of PE

Imaginal exposure should engage the client's full range and depth of emotions associated with the trauma memory. This is achieved by repeated recounting in extraordinary imaginative detail, across all five senses, the trauma as if it were happening now. Note that thinking about the traumatic event is often precisely that

which the client does not want to do. Traumas are recounted as if they were being relived, in present tense, and described to the therapist as if the client were in the traumatic situation speaking to the therapist a remote location by phone. Every five minutes the therapist asks the client for their subjective unit of discomfort (SUDs) rating, which is an anxiety rating from zero to 100. If ratings are below 60, the therapist will encourage the client to proceed longitudinally through the experience and imagination of the trauma, when the ratings begin to approach 85 or 90, the therapist will direct the client's attention to certain aspects of the traumatic memory and hold in this way until ratings begin to decrease after several minutes. These imaginal sessions last 10 to 20 minutes and are followed by a discussion, or 'processing' of the event.

Processing often reveals new details or perspectives on the trauma, which are then incorporated immediately into another imaginal exposure of 10 to 20 minutes. Over sessions, clients proceed further and further toward the worst, most anxiety provoking aspect of the traumatic memory (called a 'hot spot'; there may be several hotspots). Across sessions, SUDs levels gradually diminish, and the traumatic memory becomes less anxiety provoking. In this way images, thoughts and feelings represented in the fear structure can be processed and integrated (emotional processing). During the recounting, the therapist actively monitors the narration, assuring that it is detailed and sufficiently anxiety provoking to allow gradual extinction of the anxiety response Success is evident when the client can relive the memory without feeling overwhelmed by the anxiety (note: anxiety is still present, it is no longer overwhelming, however) (Back et al., 2015).

3. Dropout from PE and Other Evidence Based Treatment for PTSD

Although PE was initially designed for survivors of sexual violence (Foa, Rothbaum, Riggs, & Murdock, 1991), its use, along with that of other CBTs, has increased dramatically with those exposed to military conflict, in response to the particularly widespread awareness of psychological suffering of Vietnam, Persian Gulf, Afghanistan, and Iraq war service men and women (Rauch, Eftekhari, & Ruzek, 2012; Eftekhari et al., 2013; Goodson et al., 2013). Given initial positive results, the VHA engaged in an unprecedented effort to offer PE or CPT to all Veterans with PTSD. They met the predicted demand for treatment by training all psychologists and social workers in VHA services who primarily serve Veterans with PTSD in PE and CPT procedures through formal workshops followed by a 6-month consultation program (Karlin et al., 2010; Karlin, 2012; McLean & Foa, 2013; Ruzek & Rosen, 2009). Moreover, the DoD and VHA implemented post-deployment screening for mental health problems at all primary care visits (Wright, Huffman, Adler, & Castro, 2002). Thus, Veterans and active duty personnel are more likely than ever to be identified and referred to effective PTSD treatment. Given this tremendous effort and associated expense, it is therefore disconcerting that even though over 40% of those screening positive indicate that they want care for PTSD symptoms, and even though effective treatments exist, and hundreds of VHA and DoD providers have been trained to deliver these treatments, only 25% of those who screen positive for PTSD actually attend these services (Hoge, Auchterlonie, & Milliken, 2006). Moreover, Kehle-Forbes, Meis, Spoont, and Polusny (2016) found that fewer than 50% of those who are deemed eligible and are referred for evidence based treatment actually complete it. Similarly, others have found that of those

who attend the first session, 25-40% eventually drop out of PE or CPT prior to completion (Davis et al., 2013; Gros, Yoder, Tuerk, Lozano, & Acierno, 2011; Gutner, Gallagher, Baker, Sloan, & Resick, 2016; Hembree et al., 2003; Hernandez-Tejada, Zoller, Ruggiero, Kazley, & Acierno, 2014; Jeffreys et al., 2014; Mott et al., 2014; Rauch et al., 2012; van Minnen, Arntz, & Keijsers, 2002).

High rates of dropout are not confined to PE and CPT. A recent meta-analysis examining dropout from PTSD psychotherapy in general (i.e., both civilian and combat related PTSD, various forms of psychotherapy) showed a rate of around 20%-40% (Imel, Laska, Jakupcak & Simpson, 2013). This meta-analysis concluded that no specific aspects of a given CBT predicted higher rates of dropout, however, samples of dropouts from treatment outcome studies are typically quite small, precluding fined grained analysis of dropout factors. Given that PTSD symptoms do not typically remit over time in the absence of treatment, identifying and resolving barriers to effective treatment completion is essential. However, dropouts virtually always receive less research attention than treatment completers by the very nature of the fact that they frequently also drop out of the study within which the treatment is offered. Additionally, even when dropouts do agree to follow-up assessment, their numbers are relatively small because the original trials from which they dropped were statistically powered with respect to intent to treat or completer analyses, not dropout analyses.

Thus, only cursory investigation into predictors of early attrition from evidence-based treatment exists, yielding a very limited set of (unstable) predictors accounting for small amounts of variance. These predictors are almost always limited to those that are typically collected at baseline as part of the treatment study, rather than variables

specifically designed to explain reasons for dropout per se (an exception is the Hoge et al., 2014, study discussed below), and include only basic demographic factors related to age, combat theatre, race, and gender, as well as factors such as initial symptom severity, personality and coping styles, comorbid psychopathology, and substance abuse.

With respect to demographic differences, Garcia, Kelley, Rentz, and Lee (2011), Gros et al. (2011), Jeffreys et al., (2014), Rizvi, Vogt, and Resick (2009) and most recently Szafranski, Smith, Gros, and Resick (2017), all noted that younger age was associated dropout in their clinical sample. By contrast, Yoder et al. (2012) compared dropout rates from PE treatment in a clinical sample of Vietnam Veterans vs. Veterans of the Persian Gulf War vs. Veterans of (OEF (OIF) and found that OEF/OIF Veterans evidenced the lowest rate of dropout. These contrasting results may indicate that other, unspecified factors related to age may play a role in dropout, rather than age per se. With respect to race, Spoont et al. (2015) found that African Americans and Latinos were less likely to be retained in pharmacotherapy for PTSD, but that there were no differences with respect to race or ethnicity in treatment retention. By contrast, Lester, Resick, Young-Xu, and Artz (2010) found that African-Americans were less likely to complete treatment when compared with whites. However, as these authors noted, this may have been due to the fact that African-Americans in this sample evinced more rapid treatment gains, and thus perhaps perceived that additional treatment was not needed. Consistent with this position are the results of Cook, Thompson, Harb and Ross (2013), who found that African Americans, those with fewer traumas, and those who perceived treatment as credible were *less* likely to withdraw from

treatment. Considering gender, van Minnen, Arntz and Keijsers (2002) reported greater dropout from PTSD treatment for men, although most of that difference was accounted for by alcohol use. However, dropout from exposure-based therapy may be higher for female Veterans vs. female non-Veterans. For example, nearly 40% of Veterans with PTSD in the Schnurr et al. (2007) study dropped out of PE prior to completion.

Considering non-Veterans, Geiss Trusz, Wagner, Russo, Love, and Zatzick (2011), evaluated barriers to care and readiness for treatment in patients with PTSD resulting from intentional and unintentional injuries. These authors found that patients who reported experiencing greater numbers of past traumatic events were more willing to receive treatment but less likely to complete it. van Minnen et al. (2002) studied patients who suffered from PTSD from a variety of causes, including car accidents, sexual abuse, and work-related trauma and found that alcohol consumption was the main predictor of treatment non-completion, and was more common in males than females. Zayfert et al. (2005) tried to identify possible explanations for dropout in patients receiving exposure therapy for PTSD by examining clinical characteristics. These investigators found that patients with PTSD and comorbid borderline personality disorder traits were more likely to prematurely withdraw from treatment. Moreover, Zayfert et al. (2005) noted that the when clinicians hold negative perceptions of either the therapy they are delivering or the patient they are treating, dropout is increased, and Ruzek et al. (2017) found strong correlation of treatment success with perceptions after training in this therapy.

In many of these studies, few other factors potentially related to treatment dropout were examined, such as comfort with treatment, perceived quality of the therapeutic

relationship, environmental stability (e.g., housing; employment), and importantly, level of social support in general, and with respect to PTSD treatment components specifically. Moreover, overall confidence in predictors of dropout from evidence based treatment for PTSD is weakened by contrasting findings of risk with respect to many variables. Further, some variables are not easily modified, even if they are stable and significant predictors (e.g., race). As such, existing dropout studies have produced only limited targets for intervention, and these predictive variables have largely been those of convenience, that is, variables already collected and available.

Two factors related to dropout of particular relevance to Veterans are stigma related to mental health care and the significant patient burden associated with obtaining 12-15 weekly treatment sessions during work / family hours. Indeed, in one of the few investigations with Veterans to move beyond demographics and pre-treatment descriptive data (e.g., symptom severity), Hoge et al. (2014) studied 24 infantry soldiers who had screened positive for PTSD and dropped out of treatment in terms of their personal reasons for ending care. More than half indicated that they did not have time to speak with a mental health provider each week for the course of therapy, and about half indicated that the potential for stigma was too great and that they "should handle problems on their own." Perceptions of treatment futility, perhaps due to experiences with non-evidence based interventions, were also cited as reasons for not completing treatment (Hoge et al., 2014).

In the case of PE, the protocol itself may offer some insight into why dropout is so high, insofar as the treatment presents both logistical and emotional difficulties that must be overcome. Indeed, core treatment components are universally aversive for

clients because they involve repeated and intense exposure to one's most traumatic event memories, and repeated and intense, albeit graded exposure to community based in vivo (i.e., real world) triggers for PTSD-related anxiety. Confronting the emotions, memories, and actual situations and stimuli that elicit anxiety, avoidance, and re-experiencing of the traumatic event is a significant challenge. Even among those successfully completing treatment, PE components, per se, are routinely described in negative terms, particularly for Veterans who have experienced combat.

4. Social Support and Evidence Based PTSD Treatment Completion

King, Vogt, & King (2004) recognized the importance of social support to resilience. Tarrier, Sommerfield, Pilgrim, and Faragher (2000) found that poor social support (i.e., social environments high in criticism and hostility) accounted for 20% of the variance in PTSD treatment outcome. Similarly, Thrasher, Power, Morant, Marks, and Dalgleish (2010) found that social support was predictive of PE treatment response, even after effects of initial PTSD severity were controlled. This finding was replicated with OEF/OIF Veterans by Pietrzak et al. (2010), who found that post-deployment social support was associated with lower PTSD symptomatology. Price, Gros, Strachan, Ruggiero, and Acierno (2013) noted that emotional support was positively associated with treatment completion and success. With respect to dropout per se, Dobkin, De Civita, Parahekis, and GIll (2002) found significantly lower rates among those in substance abuse treatment who reported high social support. Similarly, Keller, Zoellner, and Feeny (2010), examined social support in terms of therapeutic alliance during treatment for PTSD (PE and pharmacotherapy) and again

found improved outcomes related to social support. It seems that one potential target for successful PTSD treatment completion and outcome is enhancing social support.

Although social support is most frequently conceptualized as support provided by family members, there is precedent for Veteran to Veteran support programs in health and mental health care ranging from untrained peers who support one another in PE delivered in group format (Smith et al., 2015), to Peer Support Specialists with formal training (the former is emulated in this application). Indeed, some peer support programs are considered evidence-based practice by the Center for Medicare and Medicaid Services (2007), and these programs are increasingly popular in the VHA system (Chinman, Salzer, & O'Brien-Mazza, 2012; Ellison et al., 2016). In most programs, peer specialists are individuals with a mental health condition (e.g., PTSD, depression and anxiety disorders, substance use), are actively engaged in their own recovery, and have been trained to use their own experiences while serving as a role model to help other Veterans with mental illness to access and engage in treatment (Chinman et al., 2014). They are not considered independent therapy providers. Peer-specialists have been successfully integrated into several VHA services such as housing programs, substance use treatment centers, inpatient units, and community clinics. Several studies examined using Veteran peers (Chinman et al., 2014; Beehler, Clark, & Eisen, 2014; Weissman, Covell, Kushner, Irwin, & Essock, 2005; Williams, Bambara, & Turner, 2012). As noted by Greden et al. (2010), using peers to counteract stigma and encourage mental health treatment engagement and adherence is a form of "using culture to change culture," where Veterans have expressed that "only those who have been there, can get it," and "Veterans take care of their own."

Peer support also constitutes positive role modeling in that improvement achieved by the peer offers an example of an alternative to withdrawal and enduring symptomatology, while simultaneously reducing stigma associated with mental health care (Jain, McLean & Rosen, 2012).

5. Innovative Methods to Deliver Evidence-Based Treatments for PTSD and Address Dropout: Telehealth

The traditional modality of delivering psychological treatments to clients is 'in person,' in an office, in a medical or private practice setting (Nesbitt, 2012). As mentioned, this presents barriers to many clients, particularly Veterans who reside in rural settings or work far from treatment centers, or for whom stigma and embarrassment about receiving mental health care is high. Technology may offer one means by which to address these access and logistical issues, particularly in the case of mental health care, with advantages including cost savings, reduced travel time, and increased system coverage (Gros et al., 2013).

As defined by the American Telemedicine Association, telemedicine or telehealth, refers to the use of medical information exchanged from one site to another via electronic mediums to improve a patient's health status (van den Berg, Schumann, Kraft, & Hoffman, 2012). There are a variety of methods encompassed by the telehealth class of treatment delivery mediums, ranging from email, chat rooms and patient-provider messaging, to remote monitoring (e.g., falls, elopement, cardiac events) and remotely controlled intervention devices (Barrett, 2012; Jankowski, Schönijahn, & Wahl, 2017; Padwal et al., 2016). Telehealth involving televideo conferencing is of particular

relevance to mental health care, and involves real-time audio and video between patient and provider (Frueh et al., 2007), a particularly significant advantage over simple telephone communication, given the importance of non-verbal facial and posturing expression in psychotherapy.

In addition to reaching patients who otherwise would not be served, telehealth can actually reduce costs of healthcare service delivery, even after investment in telehealth equipment. For example, telehealth delivered care is about 10% less expensive per patient, and 16% less expensive per visit than face-to-face treatment delivery when travel and reimbursement costs are considered (Richardson, Frueh, Grubaugh, Egede, & Elhai**,** 2009; Russo, McCook, & Davies, 2016; Shore, Brooks, Savin, Manson, & Libby, 2007).

Several studies have established that treatment of PTSD and depression by telehealth in general, and home telehealth in particular produces symptom reduction comparable to that of in person care (Acierno et al., 2017; Egede et al., 2015; Morland et al., 2013). In addition, evidence indicates comparable efficacy for comorbid mental health conditions (Wierwille, Pukay-Martin, Chard, & Klump, 2016; Yoder et al., 2013), client-provider rapport (Perle & Nierenberg, 2013), satisfaction (Gros, Lancaster, Lopez, & Acierno, 2016), compliance (Strachan et al., 2012), cost (Morland et al., 2013; Tuerk et al., 2013), and treatment retention (Hernandez-Tejada et al., 2014; Tuerk et al., 2010).

Telehealth Delivery of Evidence Based PTSD Treatment for Veterans

Although telehealth services are by no means ubiquitous (Spisante Antonicelli, Mazzanti, & Gambi, 2012), and some issues related to intra and inter-state licensing

within the United States have not been fully resolved (Fleisher & Dechene, 2006), their use has greatly expanded, particularly in the mental health field, and the potential of these methods to export treatments to patients who otherwise would not receive them is great. Consistent with the private sector, the VHA and DoD have increased standard telehealth (i.e., provider at central medical center to patient at satellite clinic) and home telehealth (provider at central medical center to patient at home) access to mental health care, along with subsequent study of the modality to assure that treatment effectiveness, particularly PTSD and depression treatment effectiveness, is similar to that of in person delivered mental health care (Acierno et al., 2017; Egede et al., 2015; Morland et al., 2013; Shore et al., 2014). Additionally, it was anticipated that because home telehealth resolved most logistical and stigma based barriers, it could represent one way to enhance treatment completion (Acierno et al., 2017; Strachan et al., 2012). Unfortunately, reduced dropout from evidence based treatment for PTSD was not observed (see below).

Veterans who live in rural areas face many obstacles to receiving care because they are more likely to have low income, higher disease burden, worse health outcomes when disease is present, and are less likely to receive prompt care (Institute of Medicine, 2013). Overall, these patients tend to report lower quality of life. Thus, increasing their access to PTSD care via telehealth is of high importance, particularly given that the current VHA operating handbook (VHA, 2012) mandates that all OIF/OEF Veterans with PTSD have access to evidence-based psychological treatments in the form of CPT and PE. Thus, medical centers that serve rural areas must not only assure that staff are trained in these treatments, but that these treatments are also available via

telehealth.

Gros et al. (2013) noted that there are some preliminary requirements for using telehealth to treat Veterans with PTSD, including at least brief training for both providers and patients on novel equipment. Moreover, 'provider drift' away from evidence based treatment procedures must be limited through additional provider training to assure protocol adherence when using this medium of treatment delivery. In some cases, telemental health has been the victim of its own successful expansion, with bandwidth issues becoming more apparent as providers crowd the same virtual space within a given center. If home-based services are being offered, connection speeds, particularly for patients in rural settings (ironically, precisely those most likely to benefit from telemental health) must be addressed, such as by using 'self-tuning' software, which automatically reduces video resolution to match signal speed. In addition to telehealth connection quality, another relevant consideration is connection security. At a minimum, HIPAA compliant data encryption standards must be met in VHA and DoD settings, and necessary encryption software tends to diminish signal quality (Gros et al., 2013).

Overall, delivery of PE to Veterans with PTSD via telehealth is thought to be one potential means by which to overcome barriers to accessing care, particularly for rural Veterans, or for Veterans for whom travel to VHA office settings is exceedingly stressful, stigmatizing or cost-prohibitive.

This conclusion has largely been supported by two non-inferiority trials demonstrating that PE delivered via home telehealth is not inferior to PE delivered in person (Acierno et al., 2017) in so far as mean symptom reduction is concerned. However, the anticipated advantages for home telehealth in terms of treatment compliance, dosing

(e.g., session attendance), and reduced attrition were not realized in these studies. This indicates that barriers for completion of treatment via telehealth may be different than barriers for completion of in person treatment. This is concerning given the increased investment and use of this treatment delivery medium.

Telehealth-Specific Barriers to PE Completion

As mentioned, telehealth, and home-based telehealth in particular, address several barriers related to treatment completion noted by Veterans, such as appointment and travel time, travel cost, and stigma associated with visiting mental health clinics (Hoge et al., 2004; 2014; van den Berg et al., 2012). Disappointingly however, Veterans receiving treatment via home based telehealth evince premature dropout from PTSD treatment at rates similar to those receiving in person care (Hernandez-Tejada et al., 2014). Moreover, telehealth delivered PTSD treatment may be associated with higher levels of discomfort and hypervigilance (Tuerk, Yoder, Ruggiero, Gros, & Acierno, 2010). Specifically, in their study of 47 dropouts from two concurrent PE trials comparing in person vs. home telehealth care, Hernandez-Tejada et al. (2014) observed that Veterans who dropped out of PE delivered in person cited logistical reasons for ending treatment, whereas those who dropped out of PE delivered via home telehealth reported that difficulty completing in vivo exposure homework as a central reason. These investigators hypothesized that Veterans in the home telehealth group, for which treatment components were, by necessity, completed relatively more independently than those of the in person group, perhaps experienced lower levels of therapist delivered social support compared to in person delivered PE. For example, even the act of coming to the VHA involves completing items on the typical combat Veteran's in vivo

hierarchy, such as travelling to a crowded parking lot and entering a crowded facility. It is typical that therapists, upon greeting patients for their appointment, will offer support for attendance, and will often specifically note the nature of exposure being accomplished simply by showing up for the sessions. This then often becomes a topic of discussion and support for these appointment-related in vivo exposure successes. By contrast, no such support for, and following completion of an in vivo exposure (i.e., attending sessions in a crowded clinic setting) was available for participants receiving PE via home telehealth. Thus, one potential target to address dropout from PE, particularly dropout from home telehealth delivered PE, may be enhancing social support for in vivo exposure trials. This conclusion is supported by the aforementioned work (e.g., Price et al., 2013) on social support and PTSD treatment completion and outcome.

6. Problem Statement

PE delivered via home telehealth is as effective as PE delivered in person in terms of overall symptom reduction. However, dropout remains high, at about 30%, despite elimination of precisely those logistical problems Veterans themselves had reported as barriers to in person PTSD treatment completion (e.g., travel time, fuel cost). This indicates other barriers to treatment completion may also be present with home telehealth delivery of PE (and, albeit not implicated by Veterans' reports, with standard office delivery of PE). In other words, treatment non-completion rates are not terribly different across in person and home telehealth delivery modalities (Acierno et al., 2017), but reasons for non-completion appear to vary, at least in part, by mode of

delivery, with difficulty completing in vivo exposure homework specifically cited by Veterans dropping out of home telehealth based PE (Hernandez-Tejada et al., 2014), and potentially also relevant to Veterans dropping out of in person PE.

The present study sought to innovatively address the problem of dropout from PE treatment for PTSD in general, and from home telehealth PE in particular by determining whether incorporating social support from peers who have completed PE directly during in vivo exposure homework, a practice actually precluded by existing VHA peer specialist guidelines, reversed dropout and reduced PTSD and associated symptoms. Specifically, and in response to Veteran feedback (Hernandez-Tejada et al., 2014; Kehle-Forbes et al., 2016), a protocol was developed (described below) whereby Veterans who had successfully completed PE were recruited to serve as PE peers to simply offer verbal support to other Veterans during a limited number (3-4 sessions per week for 3-4 weeks) of in vivo homework sessions. The opportunity to participate in this program was subsequently offered to Veterans who had dropped out of PE treatment.

Principal Objective

To evaluate whether the opportunity to receive social support during in vivo exposure therapy assignments from Veterans who themselves have successfully completed PE is effective in reversing dropout and improving PTSD outcomes.

Objective 1. To describe the proportion of Veterans who dropped out of PE who are willing to return to treatment if peer support during in vivo exposure homework were available; and among those agreeing to return to treatment.

***Hypothesis 1*.** At least 25% of Veterans with PTSD who drop out of PE will be willing to return to this evidence based treatment with the assistance of a peer offering social support during in vivo exposure homework (PE + Peer Support).

Objective 2. To evaluate both patient and peer satisfaction with incorporating peer support during in vivo exposure.

***Hypothesis 2*.** Patients who return to treatment will report that at least 'good' levels of satisfaction with peer support procedures; similarly, peers who support patients conducting PE in vivo exposure will report at least 'good' levels of satisfaction with respect to their participation in the program.

Objective 3: To determine whether PTSD and depression symptoms are further reduced upon return to PE + Peer Support during in vivo exposure homework relative to the symptom levels measured at the point of dropout, and if there is an effect of treatment modality (in person vs. telehealth) on these clinical outcomes.

***Hypothesis 3*.** Veterans who return to PE + Peer Support during in vivo exposure homework will experience a further reduction of PTSD and depression symptoms, relative to symptom levels at the point of dropout. A trend toward greater symptom reduction following introduction of peer support during in vivo homework will be evident for Veterans receiving PE via home telehealth vs. PE in person.

II. METHODOLOGY

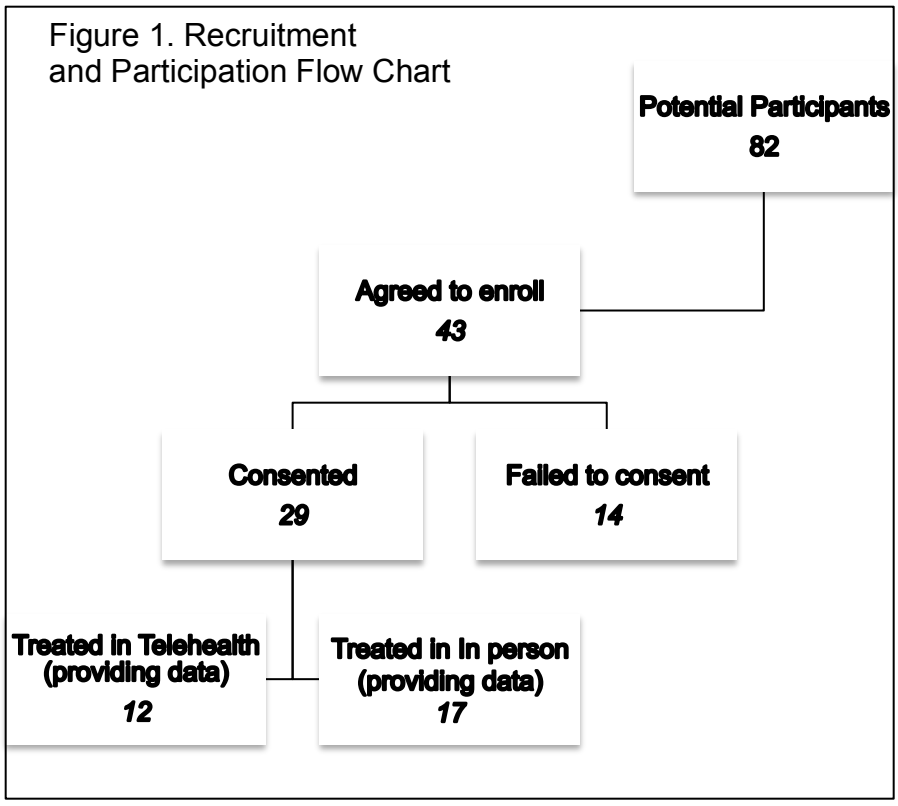
1. Overview

As is routine for initial feasibility investigations, the present study used a clinical case series design wherein each participant's post-treatment data were compared to their data obtained at initiation of the peer support treatment (i.e., within subject comparisons) to derive change scores, which were then aggregated. Thus, all participants received the peer support intervention, and there was no control group or randomization to condition. However, the participants were treatment dropouts from two recently completed randomized control trials (RCTs) at the Ralph H. Johnson Veterans Affairs Medical Center (RHJ VAMC) in Charleston, South Carolina, United States (see Acierno et al., 2016, 2017) designed to compare outcomes of PE therapy for PTSD when delivered in person vs. home-based telehealth, and the present project's post-hoc analyses did examine differential effect of the peer support intervention in terms of treatment delivery status. The rate of treatment dropout (i.e., 25-28%) was not significantly different for in person and telehealth conditions in either RCT. Participants in both conditions who dropped out of PE were offered the opportunity to return to treatment with the assistance of a peer offering verbal support during in vivo exposure homework. This was described to participants as being roughly analogous to having a weight-lifting 'workout buddy'. Those who agreed to return to treatment continued PE therapy in their former delivery modality (i.e., either in person or telehealth conditions) with their former therapists. Peers were Veterans who successfully completed PE therapy and no longer meet PTSD diagnostic criteria and who agreed to help other

Veterans by meeting them at in vivo exposure homework sites and offering verbal encouragement to complete assignments.

2. Participants

The recruitment and participation flow chart is given in Figure 1. A total of 82 Veterans (75 male and 7 female) who had dropped out of one of the two aforementioned RCTs comparing PE delivered in person vs. PE delivered via home telehealth, and continued to meet PTSD diagnostic criteria at the point of dropout, were contacted for this study. Based on parent study selection criteria, participants were male and female Veterans of Vietnam, Persian Gulf, and OIF/OEF conflicts, age 21 and older, with diagnosis of PTSD. Patients with psychosis or dementia were excluded from participation but other forms of psychopathology were not excluded (e.g. depression). Approximately 35 to 40% of participants resided in rural areas. Actively psychotic or demented persons, individuals with both suicidal ideation and clear intent, and



individuals meeting criteria for substance dependence were excluded from participation; however, to maximize generalization of results, presence of substance use and other forms of psychopathology were not grounds for exclusion.

Patients meeting inclusion criteria were asked to maintain medications at current dosages when medically appropriate. Potential participants who had recently begun trials of prescription medication were required to wait 4 weeks post-recruitment to ensure medication stabilization, at which point the assessment battery was re-administered.

3. Measures

Demographics. Demographic variables were collected at baseline assessment in the parent studies, and included age, race, ethnicity, gender, marital status, educational level, income, service connection/disability rating, branch of service and war theatre served.

Barriers to Participation Scale: Patient Satisfaction with Treatment/Peer Subscale. A subset of satisfaction questions from the Barriers to Participation Scale (BTPS, Hernandez-Tejada et al., 2014; adapted from Kazdin, Holland, Crowley & Breton, 1997) were used for the present study. The BTPS consists of 68 items: 45 items rated on a 5-point-likert scale, 23 items in a yes/no format, asking participants to rate how often they experienced a variety of barriers that may have interfered with treatment, and 7 specific items measure satisfaction with treatment, on a 5-point-likert scale (3, 7, 18, 22, 26, 27, 32). The BTPS demonstrated high levels of internal consistency (alpha = .86). In Hernandez-Tejada and colleagues (2014) study, with reliability comparable to that of

Kazdin et al. (1997), and Cronbach α = 0.84.

Debriefing questions, open ended (peers and patients): Peers were debriefed by therapists after every meeting with patients using the following questions*:*

"What was your general impression of the in vivo homework meeting with the patient?"

"Was there anything about the in vivo meeting that you would like to tell us about?"

"Was there any area you think we need to improve or do differently?"

Similarly, patients were debriefed after every meeting using the following questions*:*

"What was your general impression of the in vivo homework meeting with the peer?"

"Do you think having a peer involved in your treatment in this way is useful?"

"Was there any area you think we need to improve or do differently?"

Proportion agreeing to return to PE Therapy. The percentage of eligible dropouts from the parent studies who agreed to return to PE + Peer Support treatment, was recorded.

PTSD Checklist-Military (PCL-M; Weathers, Litz, Herman, Huska, & Keane, 1993). The PCL is a 17-item self-report measure of PTSD symptoms based on DSM-IV criteria. The PCL uses a 5-point Likert scale response format ranging from not at all to extremely. Total scores on the PCL range from 17 to 85. The instrument is highly correlated with the Clinician Administered PTSD Scale (r = .93), has good diagnostic

efficiency (> .70), and robust psychometrics with a variety of trauma populations (Blanchard, Jones-Alexander, Buckley & Forneris, 1996).

Beck Depression Inventory-II (BDI; Beck, Steer, & Brown, 1996). The BDI-II is a 21-item, 4-point Likert self-report scale, and is among the most widely used instruments to measure depression. Beck, Steer, Ball, and Ranieri (1996) demonstrated that the BDI-II has high internal consistency (α =.91).

Independent Variables: Peer Support & Treatment Modality

The primary innovation was the introduction of a supportive peer during in vivo homework assignments. Peer support within PE treatment is supported by the social support evidence discussed previously and the actionable options recommended within the VHA (Money et al., 2011). An independent variable carried over from the parent studies was the delivery modality of PE: home-based telehealth vs. standard, in-person office-based sessions.

4. Procedure

Potential participants who had dropped out of PE but still met criteria (i.e., at the point of dropout) for PTSD were contacted by study staff and offered the opportunity to return to PE, this time with the help of a peer during in vivo exposure homework. Once the participant accepted the offer, an initial appointment was set in person to sign informed consent, introduce the peer via telephone, and address acceptable parameters regarding the interaction with the peer during in vivo exposure (e.g., meeting at the in vivo exposure homework site, rather than driving together).

Participants continued to receive treatment from their original therapists, and in the modality they had been using prior to dropout (i.e., in person or home based telehealth).

Description of the Informed Consent Process

Informed consent was administered at the VHA facility by IRB approved study assistants trained in human subjects regulations and informed consent procedures, with appropriate VHA training certifications on file and up to date.

In Person or Telehealth Assignment Procedures in Parent Studies

In the parent studies from which drop out participants for this project were recruited, participants were assigned (1:1) to one either PE delivered via telehealth or PE delivered via standard in person formats. The treatment delivery method assigned in the parent study was continued in this project for all dropouts agreeing to return to treatment.

Treatment

PE + Peer Support delivered via telehealth or in person: The treatment is a modified version of PE insofar as social support from peers during in vivo exposure homework is added to the protocol. Specifically, PE is a manualized treatment (Foa et al., 2007) that includes the following components: (a) psychological education about the common reactions to traumatic events and presentation of the treatment rationale (sessions 1 and 2), (b) repeated *in vivo* exposure to trauma-related stimuli such as people, places, things, or situations that trigger memories of the traumatic event but are realistically safe (in vivo exercises are assigned as homework during sessions 3 through 11), (c) repeated, prolonged, imaginal exposure to traumatic memories (imaginal exposure is implemented during sessions 3 - 11; patients listen to session audiotapes

for homework between sessions), and (d) relapse prevention strategies and further treatment planning (session 12).

Consistent with the spirit of the new VHA mandate to use peers in specialty clinics such as PTSD clinics, this study offered those individuals who indicate that they have decided to drop out / have dropped out of treatment (e.g., stopped attending sessions) the opportunity to have a peer (see description of peer and training below) who has been through treatment successfully offer social support during in vivo exposure homework.

Specifically, participants who had dropped out of treatment were asked if they would like to try treatment again, this time with a peer who has successfully been through the experience, and who would encourage and support them during in vivo (as opposed to imaginal) exposure trials, such as going to the market. Those individuals who indicated that they would like to try treatment again continued PE from the point of their last session with their original therapist. If significant time has elapsed (> than 3 months), they began from PE session 1, in the original treatment delivery modality (in person or telehealth) that was assigned in the parent studies.

Peer Selection: Therapists were asked if they had any patients who have completed treatment and did very well, both overall and in particular with in vivo exposure therapy components. Therapists were then asked to contact these patients, inform them of the in vivo exposure homework peer support program, and ask them if they would like to participate. Those indicating an interest in participation received further description of the nature of the program and associated expectations, and a training session was set. Thus, initial nominations for the program were based on therapist impressions of

successful candidates after they had completed treatment. Peers who were candidates for the peer support program were consented, evaluated for presence of PTSD diagnosis, and only those who no longer had the PTSD diagnosis were permitted to participate in this study.

Peer Training: Peers were not therapists or therapist replacements. The major role of the peer was to simply meet Veterans at in vivo exposure homework sites and offer verbal encouragement and support. Thus, logistics and *limits* of responsibility, not skills per se, were the primary focus of peer training, which emphasized appropriate boundaries and safety procedures. Two analogies were very helpful in describing the program to potential peers and participants: that of peer and participants as 'workout buddies' and that of peer and participant having the same relationship and responsibilities to one another as group therapy patients (e.g., confidentiality). These analogies are applied as described below.

Each peer attended a 2-hour training meeting. During this meeting, the rationale for in vivo exposure was reviewed, and the benefits of having a partner, friend, or peer who offered verbal support during in vivo exposure was outlined. Training explicitly included content wherein peers were clearly informed that they were **not** engaging in the role of therapist or providing therapy. Rather, their role was equivalent to that of a supportive therapy group member in traditional group counseling (with which many Veterans are familiar), only this support is given in the context of exposure exercises. In such a situation, group members offer each other advice and support on how to achieve stated goals. In the present case, the stated and agreed upon goal was the designated vivo exposure therapy assignment. As with group counseling members, peers were trained

in the importance of confidentiality, and were not paid or compensated for their time (they were, however reimbursed for fuel by the VA). Personal responsibility was clearly outlined, and peers were well educated that neither the outcome of the treatment, nor the disposition of the patient was their responsibility. Potential negative outcomes were reviewed, including patient suicide, and the limits of peer responsibility to each scenario was discussed. Training was approved by the Medical University of South Carolina IRB and Charleston Veterans Affairs Medical Center Research Committee, and followed the recommendations of Money et al. (2011) for peer support programs within the VA system.

Peer Support Logistics & Supervision: Once patients agreed to re-initiate treatment, an available peer in closest proximity was asked to call in to the next therapy session. During the session, the therapist made introductions and the peer listened to the patient and therapist review the next homework item of the in vivo exposure hierarchy in depth. The location, timing, outline, description, and parameters of the in vivo exposure therapy assignment were reviewed and agreed to by patient, peer, and therapist. Once clarity was achieved, peer and patient finalized arrangements to meet at a set time and place to engage in the exposure homework, and were directed to arrange 3 such meetings per week for 3-4 weeks. For patients who dropped out of treatment prior to developing and engaging in hierarchy item exposure, the peer support 'session call in' was delayed until this hierarchy was established. Peers were not matched on gender or age, except in cases of Military Sexual Trauma, for which peers were matched on gender.

Following the first meeting of patient and peer to complete in vivo exposure

homework, therapists spoke independently to both parties to assure that each wished to continue with the program. Subsequently, peers, patients, and therapists held five-minute telephone check-ins during treatment sessions to assure that exposures were going well according to both patient and peer. In the event a peer was not available to call in during a treatment session, they were contacted by the therapist after the session. Finally, during the first therapist call with the peer, the therapist asked if the peer would like to continue with the participant and if there were any issues or problems. If a peer indicated that they preferred to no longer work with a participant, a different peer was assigned. If two peers indicated for any one participant that they preferred not to work with that participant, the program would be terminated for that participant, and therapists would include these interpersonal events as topics of therapeutic focus appended to subsequent PE sessions. This did not occur in the present study.

Parameters of In Vivo Exercises with Peers: As detailed above, each peer underwent training to review expectations, responsibilities, and most importantly, limits of responsibilities. All peers engaged only in hierarchy items jointly determined by the therapist and participant, with assent of the peer. No new, or unscheduled exposure activities, initiated on the part of the peer or the participant were permitted. Peers were directed to communicate with participants if either party felt or seemed to feel uncomfortable with the activity in question. The difference between discomfort arising from conditioned anxiety that is part of PTSD treatment and discomfort arising from feelings that the situation was inappropriate were discussed as part of peer training.

Only situational activities in clearly safe places were included in the in vivo exposure

participation events by peers. This was determined by review with therapist and peer. If either party felt there was more than minimal risk, the activity was not included. Note: risk of anxiety on the part of the participant is not a justifiable reason to exclude an activity; indeed, producing and dealing with such anxiety in a supportive environment is the point of in vivo exercises. It is impossible to list every possible activity that should be avoided vs. included. However, several common activities, listed below, were excluded:

- activities involving driving together (public transportation, such as taking a bus together is permitted);
- activities in or around private residences of the participant or peer;
- activities involving weapons (e.g., shooting range);
- new or previously unlisted or unscheduled activities; and
- activities that are associated with risk or danger as defined per therapist and or peer.

As mentioned, peers and participants were told that the peer program was only in place for a given patient for 3-4 weeks, 3-4 times per week, and was a means by which to allow participants to progress to their own, independently conducted in vivo exposure homework. Thus, 'phase out' of the program was built in from the beginning. Peers focused on helping participants engage in those exposure exercises that typically are social in nature. Again, any exposure trials, such as driving, that require the participant to engage alone, or from which peers were specifically prohibited were not the target of this program.

5. Data Analyses

Preliminary Descriptive Analyses. Participant demographics will be outlined.

Analysis Plan for Objective 1. The proportion of Veterans who dropped out of PE who were willing to return to treatment with peer support during in vivo exposure homework will be described, along with descriptions of program feasibility.

Analysis Plan for Objective 2. Satisfaction with incorporating peer support during in vivo exposure will be outlined in terms of the BTPS items for satisfaction using descriptive averages in terms of both patient and peer reports.

Analysis Plan for Objective 3: PTSD and depression symptom scores on the PCL-M and BDI, respectively, obtained at the point of dropout for all participants will be compared following PE + Peer Support using separate repeated measures ANOVAs with time as the independent variable. PCL-M scores, and BDI scores obtained at the point of dropout, and following PE + Peer Support, will be compared for in person and home telehealth delivery mediums (i.e., treatment delivery will serve as a between groups Independent Variable) at each time point (i.e., time will serve as a repeated measures Independent Variable) through separate two-way (treatment delivery medium X time) repeated measures ANOVA's.

Data Management

Methods Used for Data Collection: All data were in the form of self-reports. Demographic data were collected, but no uniquely identifying participant data resided with, or were linked to actual responses to questionnaires. *Participant Identification*: A file of research identification numbers was stored separately on a non-networked computer with encryption, for purposes of required audit by the VHA IRB. *Protection of*

Patient Confidentiality/Disposition of Data: Careful precautions were taken to maintain confidentiality for all participants. Specifically, investigators and research assistants signed a confidentiality agreement with the VHA that no identifying information of specific individuals would appear in any internal or external reports (e.g., peer-reviewed publications, presentations). All study data related to psychological outcomes (i.e., participant responses to questionnaires) and demographics did not have any unique identifying data commingled or attached in any way. All analyses were conducted on de-identified data only. Access to de-identified study data was limited to named project investigators, the project coordinator, and IRB audit personnel. Data were maintained per VHA requirements.

Data regarding sensitive information such as HIV status or illegal residency was not collected.

III. RESULTS

1. First Manuscript

Hernandez-Tejada, M. A., Acierno, R., & Sanchez-Carracedo, D. (2017). Addressing Dropout from Prolonged Exposure: Feasibility of Involving Peers during Exposure Trials. *Military Psychology, 29*(2): 157-163. http://dx.doi.org/10.1037/mil0000137

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RESEARCH NOTE

Addressing Dropout From Prolonged Exposure: Feasibility of Involving Peers During Exposure Trials

Melba A. Hernandez-Tejada
Universitat Autònoma de Barcelona and Ralph H. Johnson Veterans Affairs Medical Center, Charleston, South Carolina

Ron Acierno
Ralph H. Johnson Veterans Affairs Medical Center, Charleston, South Carolina, and Medical University of South Carolina

David Sanchez-Carracedo
Universitat Autònoma de Barcelona

Posttraumatic stress disorder (PTSD) is a significant problem for combat veterans. Fortunately, effective treatments, such as Prolonged Exposure (PE), are available and widely disseminated in the Veterans Affairs (VA) health-care system. Nonetheless, despite well-documented effectiveness, attrition remains high at approximately 30% across evidence-based interventions. Early studies indicated that dropout was largely related to stigma and logistical barriers (e.g., travel time and cost). However, research demonstrates that eliminating these logistical and stigma-based barriers (e.g., through home-based telemedicine) has little effect on dropout. We surveyed 82 veterans who dropped out of PE treatment regarding reasons for leaving treatment. Approximately half indicated that in vivo homework assignments caused significant problems, and when asked to consider the possibility of peer support during in vivo exposure assignments, 52% indicated that they would consider returning to treatment with such assistance. In response to this feedback, we constructed an in vivo therapy peer support program wherein peers are directly involved with in vivo exposure exercises. The following brief report presents the rationale for, outline of, and initial feasibility data supporting this program to enhance both return to, and completion of, exposure therapy treatment for PTSD.

Keywords: PTSD, peer, social support, dropout, Prolonged Exposure therapy

Approximately 15–25% of U.S. combat veterans suffer from posttraumatic stress disorder (PTSD; Kok, Herrell, Thomas, & Hoge, 2012). When left untreated, symptoms often do not remit, and as such these patients experience enduring suffering and subsequently use disproportionately greater levels of health care. Over the past decade and in response to the aforementioned needs of returning Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) veterans, the Veterans Health Administration (VHA) health-care system improved the quality of screening, referral, and treatment efforts to offer best practices care for PTSD (Karlin & Agarwal, 2013). Specifically, through national mental health provider training workshops, VHA increased its capacity to disseminate evidence-based PTSD treatments such as Prolonged Exposure (PE; Foa, Hembree, & Rothbaum, 2007).

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Melba A. Hernandez-Tejada, Department of Clinical and Health Psychology, Universitat Autònoma de Barcelona, and Ralph H. Johnson Veterans Affairs Medical Center, Charleston, South Carolina; Ron Acierno, Ralph H. Johnson Veterans Affairs Medical Center and College of Nursing, Medical University of South Carolina; David Sanchez-Carracedo, Department of Clinical and Health Psychology, Universitat Autònoma de Barcelona.

Correspondence concerning this article should be addressed to Melba A. Hernandez-Tejada, College of Nursing, Medical University of South Carolina, 99 Jonathan Lucas Street, MSC160, Charleston, SC 29425. E-mail: hernanma@musc.edu

Efficacy of and Attrition From PE PTSD Treatment

Among empirically based treatments, PE has the most consistent support for its efficacy (Institute of Medicine, 2007). Meyers et al. (2013) reported that veterans receiving PE for PTSD used significantly fewer mental health services after treatment; these results were echoed by Tuerk et al. (2013), who found a reduction of mental health service use of approximately 50%, but only among those completing PE treatment. Unfortunately, attrition from evidence-based therapy for PTSD is approximately 25–40%, even under optimal, research protocol settings in which all efforts are made to limit dropout from treatment (Gutner, Gallagher, Baker, Sloan, & Resick, 2016; Hernandez-Tejada, Zoller, Ruggiero, Kazley, & Acierno, 2014). Therefore, identifying and resolving barriers to effective treatment completion are essential to preventing suffering and controlling costs.

Research on causes for treatment dropout among veterans receiving exposure-based psychotherapy for PTSD such as PE usually centers on demographic correlates studied in post hoc analyses as part of larger treatment outcome studies (i.e., attrition from evidence-based PTSD treatment was not the original focus of the study). Consequently, very limited investigation into reasons for dropout is available. The most frequently reported reasons for early treatment withdrawal include logistical factors, (e.g., travel time and cost) and stigma (Hoge et al., 2014). However, although these factors are often indicators of statistically significant increased likelihood of attrition, their predictive value is limited. In fact, when all logistic and stigma barriers were virtually eliminated by offering exposure therapy for PTSD via home-based telemedicine, rates of attrition were virtually identical to the same treatment offered in a traditional office-based setting (Hernandez-Tejada et al., 2014). Alternative factors related to evidence-based treatment attrition and its resolution clearly should be considered.

Social Support: A Factor in Psychotherapy Completion and Success

Social support, particularly in the context of trauma exposure, may be very important to resilience in general (Pietrzak et al., 2010) and successful exposure-based treatment completion and positive outcome in particular (Tarrier, Sommerfield, & Pilgrim, 1999). Indeed, Tarrier et al. (1999) found that poor social support (i.e., social environments high in criticism and hostility) accounted for 20% of the variance in PTSD treatment outcome. Likewise, Pietrzak et al. (2010) studied OEF/OIF veterans and found that postdeployment social support was associated with lower PTSD symptomatology. Finally, Price, Gros, Strachan, Ruggiero, & Acierno (2013) noted precisely the same results, with emotional support positively associated with treatment outcome and inversely related to attrition. Therefore, social support may be useful to target as a component of PE treatment retention, particularly in veteran populations.

Peers as a Source of Social Support for Veteran Populations

Although social support is most frequently conceptualized as that provided by relatives and friends, peer support is a resource currently used successfully by other mental health specialties to help patients with difficult aspects of treatment (Corrigan, Pickett, Batia, & Michaels, 2014). Moreover, there is precedent for veteran-to-veteran support programs in health care that build on the team and leadership aspects of social support so essential to military culture. Indeed, VHA has filled more than 1,100 paid peer support specialist positions; has placed them in mental health, primary care, and outreach locations; and offers an extensive toolkit for VHA administrators and staff interested in such programs (Chinman, Henze, & Sweeney, 2013). Moreover, Chinman and colleagues (2015) have collected data and reported on peer programs recognized by VHA as examples of evidence-based, effective care. These programs engage veterans in mental health treatment by promoting recovery strategies by veteran peers who themselves are experiencing or have experienced a mental health condition such as PTSD or depression and are actively engaged in their own recovery. Of note, although they receive training, these peers do not take the place of providers. Rather, they complement provider services by using their

own recovery experiences to model effective recovery behaviors to other veterans with mental illness, including specific behaviors related to accessing and engaging in treatment (Chinman et al., 2015).

Considering the aforementioned (a) findings regarding reasons for dropout from exposure therapy for PTSD (i.e., difficulty with exposure therapy homework) and (b) data supporting veteran peer support programs, specifically data demonstrating the ability of these programs to enhance treatment engagement, we hypothesized that peer support during in vivo exposure homework may be effective in reversing dropout from exposure-based treatments for PTSD. On the basis of this hypothesis, we constructed and collected initial feasibility data for such an exposure therapy peer support program designed to reverse (or prevent) treatment dropout and enhance treatment completion.

Method

Design and Participants

The VHA PTSD clinic and PTSD research clinic in Charleston, South Carolina are engaged in this feasibility study, and those patients who indicate that they have decided to drop out or have dropped out of treatment (e.g., stopped attending sessions) are contacted by their therapist by telephone and offered the opportunity to have a peer, who has been through treatment successfully, help them to complete community-based exposure by offering social support and encouragement during exposure trials (see description of peers and training in Exposure Therapy Peer Selection and Peer Training Sections). Veterans who indicate that they would like to try treatment again, this time with the assistance of a peer support person, continue PE treatment from the point of their last session. If significant time has elapsed since their last session (greater than 3 months), they begin from PE Session 1.

Eighty-two Vietnam, OIF, and OEF Veterans (75 male and 7 female) ranging in age from 27 to 72 years were identified as having dropped out of exposure-based treatment for PTSD from two ongoing treatment outcome studies. These Veterans were recontacted and offered the opportunity to attempt PE again, this time with the assistance of a peer. We also asked clinicians to contact individuals who had successfully completed treatment and no longer met criteria for PTSD who might be interested in serving as a PE support peer.

The Exposure Therapy Peer Support Program

This program is a modified version of PE insofar as simple social support and encouragement from a peer during in vivo exposure homework are added to the standard PE protocol. Specifically, PE is a manualized treatment for PTSD (Foa et al., 2007) that includes, among other components, (a) repeated, prolonged, imaginal exposure to traumatic memories and (b) repeated in vivo exposure to a hierarchal list of stimuli that trigger traumatic memories, feelings or sensations such as people, places, things, or situations that resemble the traumatic event but are realistically safe. In vivo exercises are assigned as homework. During imaginal exposure, patients "revisit" the traumatic event, providing a detailed verbal account that includes sensory information, thoughts, feelings, and reactions experienced during the traumatic event. During in vivo exposure, the patient confronts feared, but safe, stimuli or cues in their natural environment that elicit trauma-related distress. Thus, the exposure therapy peer support program is designed so that veterans receive support and encouragement during this difficult treatment component, in the patient's natural environment. The logic underlying this program is twofold: first, veterans will be more likely to go to the assigned in vivo exposure site if they know another veteran is there waiting for them; second, social support and encouragement offered during exposure from a Veteran peer will likely increase the likelihood that the exposure trial will be successfully completed.

Exposure Therapy Peer Selection

Peers are recruited by therapists who identify patients who have completed treatment and did very well overall and particularly with in vivo exposure therapy components. These patients are contacted; informed of the exposure therapy peer support program; and, if interested, given an outline of the nature of expectations of the peer support person. Peers who are candidates for the peer support program are evaluated for

the presence of PTSD via structured clinical interview, and only those who no longer meet the PTSD diagnosis are permitted to participate. Participants are paired with peers solely on the basis of geographical proximity, except in cases in which PTSD arises from military sexual trauma (MST). In these cases the gender of the participant and peer are the same. We considered pairing participants and peers based on combat theater, age, or thematic trauma type, but we decided that each of these would reduce the exportability of the program by applying unnecessary constraints. Thus far, this decision appears appropriate.

Peer Training

The major activities of peers are to simply meet veterans at in vivo exposure homework sites and offer encouragement and support. The analogy of peers who attend group therapy and offer each other support is used to describe the type of support offered, along with expectations of confidentiality, and encouragement. Thus, logistics and limits of responsibility, not therapeutic skills, are the primary focus of training. Much time is spent emphasizing appropriate boundaries and safety procedures. During training, the rationale for in vivo exposure is reviewed, and the benefits of having a supportive partner, friend, or peer during in vivo exposure is outlined. Training explicitly includes content informing peers that they are not engaging in the role of therapist or providing therapy; rather, their role is equivalent to that of a group member in traditional group counseling. In such a situation, with which many veterans are familiar, group members offer each other advice and support on how to achieve stated goals. In the present case, the stated and agreed upon goal will be the in vivo exposure therapy assignment. In addition, as with group counseling parameters, peers are trained in the importance of confidentiality and are not paid or compensated for their time. This clarifies that they are not in the role of a therapist and it enhances the sustainability of the program, a position underscored by the fact that we have had such a high peer volunteer rate. After limits to personal responsibility are clearly outlined, and peers are well educated that neither the outcome of the treatment nor the disposition of the patient is their responsibility, a review of potential negative outcomes is conducted, including patient suicide.

Peer Logistics and Supervision: Getting Started

Once patients have agreed to reinitiate treatment with an exposure therapy peer support person, the peer is asked by the therapist to call in to the next session to make introductions and listen to the patient and therapist review the next item of the in vivo exposure hierarchy. The location, timing, outline, description, and parameters of the in vivo exposure therapy assignment are reviewed and are clear to patient, peer, and therapist. Once this clarity has been achieved, peer and patient finalize arrangements to meet at a set time and place to engage in this exposure trial and are directed to arrange three such meetings per week for 3–4 weeks.

Note that these peer behaviors are those encouraged and used when delivering exposure-based therapies in group settings (Smith et al., 2015) and with supportive family members. Specifically, we encourage group members to work together during in vivo exposure trials in between sessions as supportive and encouraging partners.

During the subsequent therapy session (i.e., after the first peer-support–assisted in vivo exposure session), the peer calls in to review how in vivo exposure homework went with the therapist and patient. In addition, therapists speak privately with patients to ensure that he or she continues to want to participate with a peer support person. Therapists ask patients to comment on any problems or benefits associated with in vivo exposures accompanied by the peer support person during treatment sessions each week to obtain a progress report of how exposure trials are going and to determine if there were any issues that should be discussed at greater length. After the first scheduled in vivo session, the therapist contacts the peer to review how the exposure homework went. Subsequently, peers, patients, and therapists hold 5-min telephone check-ins during treatment sessions to ensure that exposures are going well according to patient and peer. In the event that a peer is not available to call in during a treatment session, they are contacted by the therapist after the session. In addition, during the first therapist call with the peer, they are asked if they would like to

continue with the participant and if there are any issues or problems. If a peer indicates that they would no longer prefer to work with a particular participant, then a different peer is recruited.

In Vivo Exercises With Peers

As detailed earlier, each peer undergoes a 4-hr training to review expectations, responsibilities, and most importantly limits of responsibilities. A specific discussion of engaging in only those activities that the peer feels comfortable performing is held. A specific review of excluded activities is also held. All peers engage only in exposure hierarchy items jointly determined by the therapist and participant, with assent of the peer, in the patient's natural environment. No new or unscheduled exposure activities initiated on the part of the peer or the participant are permitted. Peers are directed to communicate with participants if either party feels or seems to feel uncomfortable with the activity in question. The difference between discomfort arising from conditioned anxiety that is part of PTSD and discomfort arising from feelings that the situation is inappropriate are discussed as part of peer training.

Only situational activities, in clearly safe places, are included in the in vivo exposure participation events by peers. Moreover, several common activities are excluded, such as activities involving driving together in either the peer's or patient's car (public transportation, such as taking a bus together is permitted), activities in or around private residences of the participant or peer, activities involving weapons (e.g., shooting range), new or previously unlisted or unscheduled exposure activities, and activities that are associated with risk or danger as defined per therapist and or peer. If participants and peers agree, then the length of time for exposure trial assistance can be extended to 6 weeks, 3–4 times per week, but this will be based on therapist judgment with respect to therapeutic gains versus risk of becoming dependent on the peer.

Measures and Data Analysis

The primary metrics of interest for this ongoing feasibility study were the proportion of PE dropouts who agreed to return to therapy and the proportion who actually reengaged in therapy. Also of interest was the feasibility of recruiting peers who have successfully completed PE to serve in a supportive role during in vivo homework assignments.

Initial Feasibility Results

Fully 52% (n = 43) of the 82 treatment dropouts who were surveyed by telephone as part of standard clinic exit interviews starting January 2014 indicated that they would be interested in trying exposure therapy for PTSD a second time if they could do so with the assistance of an exposure therapy support peer. On the basis of this interest, institutional review board approval was sought and granted in May 2015 to treat veterans through the PE plus Peer Support Program. Approximately 16% (13) of the original total sample of 82 dropouts immediately signed consent to reinitiate treatment when offered the support of a peer, 3 of who were women. PE treatment focused on combat trauma for all but one female veteran, for who the treatment focus was MST. Given the strong support from veterans who had dropped out of treatment for the proposed peer support solution, we concurrently attempted to identify peers who might be good candidates to serve in this capacity (e.g., offer to meet patients at in vivo homework locations to offer support and encouragement). Fourteen exposure therapy support peers were contacted between November 2014 and March, 2016; 12 (86%; 9 male and 3 female veterans) agreed to enroll in the program as a volunteer; and 9 (8 male and 1 female Veterans) have completed the brief training, indicating that recruitment of peers does not appear problematic. Nine of the peers had successfully completed PE in response to combat trauma, and three (2 female and 1 male Veterans) had received treatment for MST. Note that each peer agreed to accompany up to four different patients over a 6-month period, none have discontinued participation, and the future dissemination potential of the program from the perspective of veterans volunteering to help other veterans appears strong. Of the 13 aforementioned patients who signed consents to return to treatment with a peer, 2 have dropped out before reinitiating treatment, 1 has completed treatment, and the remaining 10 are engaged in treatment.

Comments and Future Directions

Over half of the veterans who dropped out of PE indicated that they would attempt treatment again if a peer were available to support them during in vivo homework assignments, and approximately one third of those indicating interest immediately signed consent to reinitiate treatment when such an option became available. Moreover, more than three quarters of all peers who were contacted agreed to serve in a PE peer support role and were subsequently trained. Ten veterans are currently in various stages of PE treatment with a peer, no adverse events have been observed, and none have requested a change in their assigned peer. Recruitment and treatment are ongoing, and patients, peers, and therapists have expressed strongly supportive sentiments. For example, one peer reported the following:

> All went well. J and I spent 1 hour and 20 minutes at the large hardware store downtown, followed by 40 minutes at the ice cream place. He was motivated, timely, communicated well and expressed a willingness to commit to continued therapy. We both look forward to meeting again today and Friday also.

One patient's comment is illustrative of the supportive, not dependent, aspects of the relationship: "The first few weeks I was really avoidant. Wouldn't do it without him (the peer). Now I'll do whatever I want without him." Finally, a comment from a therapist was as follows:

> I am so happy to be a part of this. To see these peers, who were patients once, now helping to guide others through this treatment, and feeling so good about themselves for helping their fellow Veterans, is just so rewarding for everyone.

These feasibility data provide initial support for conducting a larger evaluation focused on PTSD symptom outcome measures in addition to the process measures (i.e., willingness to return to treatment) outlined here. Findings from this pilot feasibility study, and the subsequent studies we anticipate conducting, will be directly applicable to the VHA system, for which peer support programs have become a national priority. Our findings compliment those of Chinman et al. (2015) and build on those of Davis, Shore, and Lu (2016), who also used peers as integral parts of a home-based telemedicine project for evidence-based psychotherapy for PTSD. Results may also be very relevant to civilian patients for whom dropout from evidence-based treatments for PTSD is also a significant and enduring problem and for whom social support during treatment has been identified as key (Tarrier et al., 1999). If successful, then this treatment adjunct will represent a new, efficient, and exportable method to address the problematic rate of dropout from our most effective evidence-based therapies for PTSD.

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2. Second Manuscript

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RUNNING HEAD: PEER SUPPORT SATISFACTION IN DROPOUTS FROM PE

Re-engaging Dropouts of Prolonged Exposure for PTSD Delivered via Home-Based Telehealth or In Person: Feasibility & Satisfaction with Peer Support During In Vivo Exposure Homework.

Melba A. Hernandez-Tejada[1,2,3]

Ron Acierno[2,3]

David Sánchez-Carracedo[1]

[1]Universitat Autònoma de Barcelona, Barcelona, Spain, Department of Clinical and Health Psychology, Edicici B, Campus de la UAB · 08193 Bellaterra, (Cerdanyola del Vallès) · Barcelona · Spain

[2] Ralph H. Johnson Veterans Affairs Medical Center 109 Bee St., Charleston SC 29425

[3]Medical University of South Carolina, 99 Jonathan Lucas Street, Charleston SC

Abstract

Prolonged Exposure (PE) for Veterans with post-traumatic stress disorder (PTSD) delivered via home-based telehealth produces outcomes comparable to in person delivered PE. However, similar dropout rates across modalities (30%) are evident, with logistical factors cited as reasons for dropout from in person PE, and difficulties during in vivo exposure linked to dropout from home-based telehealth PE. Based on these findings, a program to introduce peer social support directly during in vivo exposure homework was developed. 82 Veterans with PTSD who dropped out of PE were invited back to treatment, this time with peer support during in vivo exposure. Initial qualitative feedback, as well as feasibility, re-engagement, and satisfaction, data were collected. Peers were Veterans who successfully completed PE treatment. Interactions between peer and patient were limited in frequency and duration to 3-4 times per week for 3-4 weeks. Of the 82 PTSD+ PE dropouts who were given the opportunity to return to treatment with peer support during in vivo exposure 29 (35.4%) accepted and re-entered treatment (in person=17; telehealth=12). The opportunity to re-engage in treatment, this time with the assistance of a peer, was central to the decision to return to treatment, and satisfaction with the program was high. Feasibility findings indicate that focused peer support may be one way to address PE dropout. Integrating peer support and PE builds on the camaraderie that characterizes Veterans, who are trained to work together to accomplish mission specific tasks (in this case, in vivo exposure homework).

Keywords: peer support, telehealth, PTSD, prolonged exposure, Veterans

Prolonged Exposure (PE) is an effective treatment for Post-Traumatic Stress Disorder (PTSD) in Veterans, defined both in terms of symptom amelioration and subsequent reduced use of mental health services (Cook & Wiltsey Stirman, 2015; Karlin et al., 2010; Karling & Agarwal, 2013; McLean and Foa, 2011). Indeed, among therapies for PTSD, PE has the most consistent support for its efficacy (Institute of Medicine, 2014). Unfortunately, rate of dropout from PE and other evidence based PTSD treatments is about 30% in Randomized Control Trials (RCTs), and even higher in actual clinical practice (Najavits, 2015). As such, identifying and resolving barriers to effective treatment completion is paramount. Telehealth-delivered PE, and home-based telehealth delivered PE in particular was posited as a strategy to reduce dropout because telehealth addresses several patient-reported factors related to psychotherapy attrition, such as travel time, cost, and stigma associated with visiting mental health clinics (van den Berg, Schumann, Kraft, & Hoffman, 2012). Moreover, home-based telehealth offers an affordable way to provide mental health services to rural and remote populations, or to those with physical conditions that make office based care difficult to obtain (Acierno et al., 2017; Frueh et al., 2007).

Despite apparent advantages of telehealth in delivering evidence based PTSD treatment such as PE, recent research demonstrates comparable rates of dropout across in person and telehealth modalities (Hernandez-Tejada , Zoller, Ruggiero, Kazley & Acierno, 2014). In their examination of dropouts from two very large treatment outcome studies, Hernandez-Tejada et al. (2014) noted that, whereas Veterans receiving in person treatment expectedly cited problems with logistics (e.g., parking, travel time) as reasons for leaving treatment, those receiving care via home based telehealth reported higher levels of discomfort during PE in vivo exposure homework, although they did complete more therapy sessions prior to dropout (see also

Morland, Greene, Ruzek, and Godleski, 2007). Similar findings were observed by Tuerk, Ruggiero, Yoder, Gros, and Acierno (2010), who noted increased hyper-vigilance symptoms in patients receiving exposure therapy via telehealth vs. in person. Overall, these findings suggest a potential need for clinical and administrative modifications to the standard exposure therapy protocol, particularly when delivered via home-based telehealth.

Fortunately, prior research indicates social support may lower attrition from psychotherapy (Pietrzak et al., 2010; Price, Gros, Strachan, Ruggiero, & Acierno, 2013; Tarrier, Sommerfield, & Pilgrim, 1999), and formalized peer social support programs, often referred to as "peer navigation" services, enhance treatment engagement by creating a means by which peers who have completed treatment assist those currently in treatment (Chinman et al., 2013; Corrigan, Pickett, Batia, & Michaels, 2014). Hernandez-Tejada et al. (2014) hypothesized that peer social support, brought to bear directly during in vivo exposure homework, might be particularly useful when treating PTSD with PE delivered via home-based telehealth, potentially addressing, in part, the problem of dropout from PE. Note that employing peers in this way (i.e., directly in core treatment components) extends beyond typical peer support programs, which center on encouraging Veterans to enter and remain in treatment through peer-patient interactions that occur outside the specific context of actual treatment procedures (see Money et al. (2011) for a discussion of such Department of Defense and Veterans Administration programs).

To date, peer support has not been used directly during in vivo exposure homework, an aspect of PE often described as problematic by patients suffering from PTSD, particularly when PE is delivered remotely via telehealth technology. The present study leverages two recently completed randomized controlled trials (RCTs) comparing exposure therapy for PTSD delivered

via in person vs. home-based telehealth to assess feasibility of such direct peer support with treatment dropouts (Acierno et al., 2017, Acierno et al., 2016).

We hypothesized that a significant proportion of Veterans who had dropped out of PE would be willing to return to treatment if accompanied during a limited number of in vivo exposure sessions by a Veteran peer who had successfully completed treatment, that this service would be viewed as particularly welcome by those receiving treatment via telehealth, and that patients and peers would report high satisfaction with the program**.**

Methods

Participants

Eighty-two Veterans (75 male and 7 female) who had dropped out of a PTSD treatment outcome study comparing PE delivered in person vs. home-based telehealth were screened for this feasibility study. Veterans ranged in age from 27 to 72 years and included several war service eras (Vietnam, Post-Vietnam, Persian Gulf and OEF/OIF). Table 1 presents demographic information for the 29 Veterans (17 in person PE, 12 home-based telehealth PE) who chose to return to treatment. The average age was $\bar{x}$ = 47.9 years (SD=12.5) with no differences between telehealth and in person service modalities. A majority of Veterans in both treatment delivery modalities were male, Black, employed, married, and most served during the Persian Gulf and OIF/OEF conflicts. A majority of patients who had received PE in person resided within 30 miles of the VA hospital (88.2%) while 50% of those receiving PE via telehealth resided in rural areas outside this radius.

Measures

a. *Number of post-dropout treatment sessions*: count of additional PE treatment sessions

completed by participants after treatment re-initiation with peer support.

b. *Number of in vivo homework assignments upon returning to PE*: count of additional in vivo homework assignments completed after treatment re-initiation with peer support.

c. *Patient Satisfaction with Treatment/Peer:* Select item scores from the Barriers to Participation Scale (BTPS)-Modified (Hernandez-Tejada et al., 2014). The original BTPS (Kazdin, Holland, Crowley, & Breton, 1997) consists of 68 items (45 items rated on a 5-point-likert scale, 23 items in a yes/no format), asking participants to rate how often they experienced a variety of barriers that may have interfered with treatment. For this study, a subset of 7 satisfaction questions were adapted to focus on peer support as part of treatment, and were asked after the final meeting between patient and peer. As with the original BTPS, statements were rated on customized 5-point-likert scales. For the first four questions:

#3: "Scheduling of in vivo exposure with the peer was a problem."

#18: "I felt I had to give too much personal information to the peer."

#26: "The peer did not seem confident that treatment would work for me."

#27: "The peer did not seem confident in my ability to carry out homework."

The likert scale response ranged from *"0 never a problem, to 4 very often a problem."*

For the fifth question:

 # 7: "*I did not like the peer support specialist."*

The likert scale response ranged from "*0 I liked the peer a lot, to 4 I did not like the peer at all*."

For the sixth question:

#22: "*The atmosphere of the clinic…"* (or for in home sessions: "*The atmosphere created by using the ipad) ...made it uncomfortable for appointments."*

The likert scale response ranged from "*0 no, the atmosphere was fine, to 4 it was very uncomfortable."*

For the final question:

32: "*I do not feel the peer support specialist supported me or my efforts."*

The likert scale response ranged from *"0 peer was very supportive to 4 peer was never supportive."*

d. Debriefing questions, open ended (peers and patients): As mentioned, peers were debriefed by therapists after every meeting with patients using the following standardized queries*:*

"What was your general impression of the in vivo homework meeting with the patient?"

"Was there anything about the in vivo meeting that you would like to tell us about?"

"Was there any area you think we need to improve or do differently?"

Similarly, patients were debriefed after every meeting using the following questions*:*

"What was your general impression of the in vivo homework meeting with the peer?"

"Do you think having a peer involved in your treatment in this way is useful?"

"Was there any area you think we need to improve or do differently?"

Procedure

All participants who withdrew from treatment prior to achieving the minimum 'dose' of 8 sessions from the parent PTSD treatment studies, yet still met DSM-IV criteria for PTSD, were given the opportunity to re-initiate treatment, this time with the help of a peer support specialist who offered social support and encouragement during 3-4 in vivo exposure trials for a maximum of 3-4 weeks (i.e., for a maximum of 12 accompanied visits). Veterans who indicated that they would like to try treatment again, this time with the assistance of peer, continued PE treatment

with their therapist from the point of their last session in the same modality (i.e., in person or via home telehealth). If significant time had elapsed since they had dropped out of treatment (i.e., greater than 3 months since their last session), treatment began from PE session 1. Satisfaction questions were collected after patient and peer decided the supplemental in vivo homework peer support was no longer needed, or the maximum number of weeks of peer support had been met. In addition, study clinicians were asked to query patients who had successfully completed treatment and no longer met criteria for PTSD as to their interest in serving as an in vivo exposure therapy homework support peer. Peer recruitment was continuous, with the primary purpose of developing a geographically diverse set of peers so that logistical issues related to offering social support at in vivo exposure locations were minimized. Peer training was very focused and highlighted that peers were not acting in the role of therapists, but instead were to serve as 'exposure homework workout buddies', meeting patients at the site of in vivo exposure homework assignments, and offering support and encouragement during the homework. Peer training also included a review of situations that warrant calling for help (e.g. suicidality), and both patients and peers were briefed on these safety procedures (Hernandez-Tejada, Acierno, Sanchez-Carracedo, 2017).

Peers were taught that their task was merely to encourage patients to engage in the in vivo session and to endure the situation for as long as they could tolerate with moderate discomfort. They were instructed to use phrases such as, "you are doing great, I am here with you, let's face this like we are on a mission (a peer recommended this as it matched the usual language of communication among Veterans). Peers were also allowed to share their own recovery stories during in vivo homework if they observed similarities between the patient's avoided situations

and their own. Peers were matched to patients on the basis of proximity. For safety purposes, peers were instructed not to drive with patients in their own or the patient's car, or to accompany patients in any situations or places they felt might be dangerous; nor were they permitted to go to each other's residences or shooting ranges. In general, most meetings for in vivo homework took place in locations such as grocery stores, department stores, coffee shops, parking lots, parks and public gathering areas (Hernandez et al., 2017).

Results

Fifty-two percent (n = 43) of Veterans who had dropped out of PE but still met criteria for PTSD indicated their interest to return to PE treatment with the assistance of a peer during in vivo exposure homework, and 35.4% (n = 29) actually did so. Twenty-four Veterans who had successfully completed PE treatment and no longer met PTSD criteria indicated that they were interested in acting as peers, and 14 presented for, and completed a peer training program.

Quantitative Outcomes Regarding Satisfaction and Feasibility

Prior to dropping out, participants receiving home-based telehealth PE (n = 12) and in person PE (n = 17), completed an average of $\bar{x} = 3.4$ (SD=2.0) and $\bar{x} = 2.8$ (SD = 2.7) therapy sessions, respectively. After re-initiating treatment with the offer of peer support during in vivo exposure, those in the home-based telehealth group completed an average of $\bar{x} = 4.5$ (SD = 4.3) additional therapy sessions, while those in the in person group completed an average of $\bar{x} = 2.8$ (SD = 3.5) additional therapy sessions (see Table 2). Table 2 also demonstrates a similar finding with respect to in vivo homework assignments, which also increased, particularly for home-based telehealth participants, following returning to PE with peer support.

Considering satisfaction questions from the BTPS; a majority of patients reported most

of their answers in terms of scale extremes (either "0" reflecting no problems or "4" indicating problems). Virtually no participants in either telehealth ($\bar{x}$ = 0.3, SD = 0.5) or in person ($\bar{x}$ = 0.0 SD = 0.0) conditions gave negative ratings to the query "*Scheduling in vivo exposure with the peer support specialist was a problem*." Consistent with this, the average rating to the query "*I do not like the peer support specialist*" for telehealth participants was $\bar{x}$ = 0.0, compared to an average rating of $\bar{x}$ = 1.0 (SD = 1.0) for in person participants. All telehealth participants endorsed "0" to the query "*I felt as if I had to disclose too much personal information to the peer specialist*," and most in person participants rated this item similarly ($\bar{x}$ = 0.6, SD = 1.3). Telehealth participants also endorsed "0" in response to the query "*The atmosphere of the clinic (or for in home sessions the atmosphere created by using the Ipad) made it uncomfortable for appointments*," while the average rating for in person participants to this query was $\bar{x}$ = 0.2 (SD = 0.5). All participants in both telehealth and in person conditions endorsed "0" (no issues) in response to the final 3 queries: "*The peer support specialist did not seem confident that treatment would work for me; The peer support did not seem confident in my ability to carry out homework; I do not feel the peer support specialist supported me or my efforts*."

Qualitative Outcomes Regarding Peer and Patient Impressions: Thematic Summary

Peers were debriefed after in vivo exposure homework assignments. Peer verbalizations expressed consistent confidence in both the program and the Veterans they were serving. They exhibited professionalism and were clearly enthusiastic about the work patients were doing. Similarly, patients were extremely complimentary regarding their peers. Of note, many patients stated that they would not have either tried treatment again, or engaged in in vivo exposure

homework without the support of the peer. Finally, patient verbalizations reflected increased confidence in their own abilities to engage in exposure trials, which we found refreshing, as we were cautiously aware of the potential for developing dependence on the peer.

Peers and patients offered the following comments illustrating both their excitement regarding the program, and their confidence in participant's capabilities for successful treatment:

DG (peer) regarding in vivos with LB (patient):

-"*We went in Walmart and got groceries – she did well; went to Burger King and she stayed a while talking; "she did good, she got anxious, but did good!*"

-Peer reported "*...feeling proud of myself and patient for completing our in-vivos together."*

DB (peer) regarding in vivos with JL (patient):

-"*He did fantastic: Spent 3 hours in bowling alley – went well – very crowded and we even worked on dealing with sudden noises, people walking behind, sitting with back turned to crowd, standing and observing others, greeting strangers and meditation."*

-"He's really been enthusiastic about these meetings and it's been very rewarding to hear him say that it's helping him".

-"All went well. J and I spent 1 hour and 20 minutes at Lowes in Goose Creek followed by 40 minutes at Dairy Queen. He was motivated, timely, communicated well and expressed a willingness to commit to continued therapy. We both look forward to meeting again today and Friday also."

MJ (peer) regarding CS (patient):

-"*Met with C. on Sunday for coffee……There were zero people at first but gradually got busy. At over an hour I asked if he was ready and we headed out….We did leave after the influx of people*

had come and gone and it was only us. He also had his back to the crowd of people. All in all a very good run. Goal is to sit at a sporting event. Gave him some pointers on how I was able to get to that point. Seems motivated to push forward."

Therapists also asked *patients* about their experience with their peer. Here are some of the therapist and patient quotes:

LB (patient) regarding in vivos with DG (peer):

-"*I only shopped late at night to avoid crowds, but I was able to meet peer in Walmart on Friday afternoon*!"

-Reported being proud of herself for the activities with the peer.

IG (patient) regarding in vivos with MJ (peer):

-He reported overall positive experience, stating that veteran peer was "*…helpful and supportive by going at patient's pace, one step at a time*," and "*I did not feel pressured*".

JL (patient) regarding DB (peer):

-"*I wouldn't have done it by myself…but it is much easier now".*

- "The first few weeks I was really avoidant – wouldn't do it without him – now I'll do whatever I want without him".

-Regarding a local recreation exhibit of a Vietnam US Army Camp, which he attended as a 'graduation' from treatment: "*I LOVED it… I can't thank you enough…you would be amazed how much of it I actually remember and the whole time scale of 1 to 10 maybe about a 4*" (regarding anxiety).

JL regarding overall experience with treatment:

-"*D. is great! There should be a question JUST about how great he is*" (said when answering peer specialist questions)

**When asked about program the patient reported:

"*I personally feel that everyone should have a peer specialist… just having someone who has been through the program gives you more confidence. I mean I came (to treatment) before and flat gave up, but this time was very different. At first, I didn't have any hope of getting better, I'd been like this since 2008, didn't go anywhere, not even around my own family - totally isolated, but now I am doing things I never thought I'd do again -I went to the beach yesterday, ON THE 4TH OF JULY, something I would have NEVER done before!*"

CS (patient) regarding MJ (peer):

-Trip to coffee shop: "*Everything went fine - I liked him! I thought having him was a lot of help, I am VERY comfortable with him especially knowing he's a veteran and not a civilian*."

--> G. (therapist) on CS (patient): "*This is a patient that I saw for 8 weeks and couldn't get him to do in-vivos!*"

CS (patient): Patient went to Walmart alone for in-vivo after help from peer stating "*When I met with peer it was like a trigger; something in my head said you can do it-if he can, you can too! When speaking with him I got a whole lot more confidence. He told me how he did it and I knew I could do it*."

CS (patient): "*Since I started this program I've gone out more times than I have in the last 10 years*."

-"*The experience with M. gave me the courage to make these changes - that one experience is all I needed - I realized if he could do it, I can do it. I made up my mind right then. This program is more beneficial than y'all think*."

-"*I'm now spending more quality time with my wife*." (He's been taking her out to eat...and for the first time in 15 years was able to take his daughter out to lunch).

Discussion

High rates of dropout from psychotherapy in general, and evidence based PTSD treatment in particular are a matter of great concern. While some preliminary work illustrates reasons for dropout, very little research on actual programs to address and even reverse dropout exists. Therapies like PE, though effective, present great challenges (Rosen et al., 2016), and patients often report being uncomfortable with, or avoid altogether, treatment components that are most demanding (and likely most important to therapeutic change). In the case of home PE delivered via home-based telehealth, this appears to be the in vivo exposure homework tasks (Hernandez-Tejada et al., 2014). Social support may enhance engagement and reduce posttraumatic cognitions (Zang et al., 2017), and social support applied directly toward overcoming avoidance, such as that characteristic of PE-based in vivo exposure, may be particularly helpful. Indeed, low social support is associated with increased risk and severity of PTSD (Sripada, Lamp, Defever, Venners, & Rauch, 2016) and lower treatment engagement (DeViva et al., 2016). Thus, enhancing social support precisely during in vivo exposure trials may be particularly useful in terms of treatment re-engagement, and represents a departure from, or perhaps, intensification of the manner in which peer support programs are traditionally used. That is, while evidence exists in support of using peers to enhance *engagement* in substance use and PTSD treatments, these programs generally use peers in a tertiary manner to enhance treatment initiation and attendance, such as through adjunct support groups or talks where peers and patients discuss difficulties associated with treatment (Chinman, Henze, & Sweeney, 2017) (see also https://www.ptsd.va.gov/apps/AboutFace/). This contrasts with the present project, which uses peers *directly* in core components of the PE treatment itself. As a group, Veterans

may be in particularly well suited for peer-based support during difficult treatment components such as in vivo exposure, insofar as their military training has imparted useful skillsets regarding collaboration, protection and support of the other, and teamwork. Specifically, military culture emphasizes camaraderie (Meyer, Writer, & Brim, 2016), which can be used in the service of each Veterans' mental health. Indeed, military service men and women have been trained to rely on fellow Veterans, and this interpersonal bond and reliance does not easily disappear after their post-deployment life begins. Thus, leveraging camaraderie through a peer program, wherein peer support is directly applied to those aspects of treatment reported as most difficult, resounds well with military personnel (Coll, & Weiss, 2013; Hernandez-Tejada et al., 2014; 2017).

Thus far, following the introduction of the peer support program, participants receiving PE via home-based telehealth have completed an average of 4.5 additional sessions post dropout, and those in in person treatment have completed an average 2.8 additional sessions post dropout. While this may not represent a complete resolution of the dropout problem, it did represent a doubling of the 'dose' of PE they received. Nonetheless, the VA has targeted 8 treatment sessions completed within 14 weeks as the best practices goal for PTSD care, and additional enhancements to our peer based program may be warranted.

Also interesting was the finding that Veterans receiving PE via telehealth were more likely to use the peer for more in vivo exposure homework sessions than those receiving PE in person. This difference might be related to the greater levels of discomfort during exposure homework reported by Veterans receiving PE via home telehealth noted by Hernandez-Tejada et al. (2014). A similar finding was also reported by Tuerk et al. (2010) with respect to increased hypervigilance when PE was delivered via telehealth.

Down to a person, the experiences of participants in our pilot study have been very positive, and the results indicate not only a return to evidence-based PTSD treatment, itself a major accomplishment, but also extremely high satisfaction with the program on the part of the patient and peer for both telehealth and in person treatment delivery modalities. Note that the present program speaks not to treatment outcome per se, but to treatment engagement in that patients who otherwise would not receive evidence-based PTSD care did so based on the offer of help from a fellow Veteran. As mentioned, this feasibility study is part of a larger outcome study and treatment is ongoing. Future reports will complement these feasibility findings regarding engagement and satisfaction with data on actual PTSD outcomes.

Limitations of this study include its small sample size and limited number of feasibility measures. As this was an initial pilot feasibility study of individuals who had already decided to leave treatment, dependent measures were purposefully kept to a minimum. Moreover, a program to reverse PTSD treatment dropout has not actually been examined before, and while our overall sample was small, converting more than 30% of those dropouts back into treatment is notable. Future work should include examination of parameters associated with treatment re-initiation and completion in a larger sample, perhaps across several VA medical centers. Moreover, increased representation of women and Hispanics would have been preferable.

Future studies with sufficient sample size should also include actual treatment outcome data to determine whether patients who dropout, but subsequently return to treatment with the help of a peer, improve to a degree comparable to patients who complete treatment without dropping out. Research should also examine frequency of use of peer support across delivery modalities and the linear relationship between magnitude of peer support affects specific symptoms of PTSD related to potential dropout. Also, examining expansion of the peer support

concept to other PTSD-affected populations for which dropout is also problematic (e.g., PTSD related to military sexual trauma) has relevance not only in Veterans, but also to general population. Finally, this strategy of dropout reversal may also be useful with other evidence based treatments for PTSD such as Cognitive Processing Therapy (Resick, & Schnicke, 1992), and for other clinical populations for whom in vivo exposure therapy is central (e.g., obsessive compulsive disorder).

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Table 1. Demographic characteristics of study sample

	Telehealth (n=12)	In person (n=17)	Total (n=29)
Age (years)	$\bar{x}$= 48.3 (SD=13.7)	$\bar{x}$= 47.7 (SD=12.0)	$\bar{x}$= 47.9 (SD=12.5)
Education (years)	$\bar{x}$= 13.6 (SD=1.2)	$\bar{x}$= 13.1 (SD=4.1)	$\bar{x}$= 13.3 (SD=3.15)
Gender			
Female	16.7%	41.2%	31.0%
Male	83.3%	58.8%	69.0%
Race			
Black	66.7%	70.6%	69.0%
White	33.3%	29.4%	31.0%
Marital Status			
Married	75.0%	47.0%	58.6%
Not married	25.0%	53.0%	41.3%
Employment			
Employed	58.3%	58.8%	58.6%
Unemployed/Retired	33.3%	29.4%	31.1%
Other	8.3%	11.8%	10.3%
War Era			
Persian Gulf/OEF/OIF	72.8%	75.0%	74.0%
Vietnam	28.2%	22.5%	25.0%
Post-Vietnam		2.5%	1.0%
Distance to VA Clinic			
Less than 30 miles	50.0%	88.2%	72.4%
More than 30 miles	50.0%	11.8%	27.6%

SD = Standard Deviation.

Table 2. Average number of treatment sessions and In vivo homework assignments completed before and after returning to PE with peer support.

	Telehealth Mean (SD)	In person Mean (SD)
Treatment Sessions before dropping out	3.4 (2.0)	2.8 (2.7)
Completed in vivo homework before dropping out	2.6 (2.7)	2.9 (3.4)
Additional Treatment Sessions after returning to PE+peer treatment	4.5 (4.3)	2.8 (3.5)
Additional In vivo homework completed with peer after returning to PE+peer	3.3 (4.1)	1.6 (2.1)
Additional In vivo homework completed without peer after returning to PE+peer	4.9 (7.8)	4.7 (9.3)

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Incorporating Peer Support During In Vivo Exposure to Reverse Dropout from Prolonged Exposure Therapy for PTSD: Clinical Outcomes

Melba A. Hernandez-Tejada DHA[1,2,3]

Stephanie Hamski, MA[2,]

David Sánchez-Carracedo, PhD[1]

[1]Universitat Autònoma de Barcelona, Barcelona, Spain;

[2] Ralph H. Johnson Veterans Affairs Medical Center, Charleston, SC, USA;

[3]Medical University of South Carolina College of Nursing, Charleston SC, USA;

Abstract

Prolonged Exposure (PE), a highly effective, evidence-based treatment for PTSD is characterized by a dropout rate of 25-35%. This high level of premature attrition is also observed in other evidence based treatments for PTSD. While home based telehealth delivery of PE resolves logistical barriers to care such as travel time and cost, dropout appears unaffected. A previous study conducted to determined the cause of dropout from PE delivered via telehealth found that Veterans, particularly those receiving care via telehealth, reported problems with in vivo exposure, and that having a peer offer support during in vivo exposure assignments might have prevented their attrition from treatment. Note that peers are routinely consigned to tertiary roles in mental health care to enhance treatment initiation or engagement. However, the present pilot study treatment was designed in a manner consistent with aforementioned Veteran suggestions, specifically, to involve peers offering verbal support and encouragement in a manner analogous to the encouragement offered by exercise 'workout buddies' directly during in vivo exposure homework. Such a treatment modification might be particularly useful for those receiving care via telehealth, given increased difficulties with exposure reported when this treatment delivery modality is used. It was hypothesized that dropouts would agree to re-engage in treatment with a peer, and would subsequently evince improvement in PTSD and depression scores as a result of this treatment re-engagement. Of 82 dropouts from PE, 29 re-entered treatment when offered peer support during exposure (12 in telehealth and 17 in person). Treatment re-entry was effective insofar as indices of both PTSD and

depression were significantly reduced in both telehealth and in person groups, indicating that using peers in this way may be an effective means by which to return Veterans to care, and ultimately reduce symptomatology.

Key Words: Telehealth, PTSD, Veterans, Depression, Dropout

Introduction

Posttraumatic stress disorder (PTSD) is a debilitating condition characterized by high comorbidity with other mental and physical health disorders [1], and affects approximately 15% - 20% of Vietnam Veterans [2, 3, 4], 10-15% of Persian Gulf War Veterans [5], and up to 23% of Operation Enduring Freedom / Operation Iraqi Freedom (OEF/OIF) Veterans [6]. Fortunately, effective treatments for PTSD, including combat-related PTSD exist, such as Prolonged Exposure (PE) and Cognitive Processing Therapy (CPT) [7, 8, 9, 10]. Recommended pharmacological interventions, despite their relative ease of implementation, do not produce the same degree of treatment improvement as the exposure-based psychotherapies [10,11]. However, evidence based psychotherapies such as PE and CPT are plagued by relatively high rates of dropout; with approximately 30-40% of patients terminating treatment prematurely [12, 13, 14, 15, 16, 17, 18, 19], and continuing to experience problems that have significant impact on themselves, their families, and the systems (e.g., Department of Veterans Affairs) and communities within which they live [20, 21].

Consistent with aforementioned treatment guidelines, and in keeping with increased awareness of psychological suffering in Vietnam, Persian Gulf, and OEF/OIF

service era Veterans [18, 22, 23], the Department of Veteran Affairs (VA) [24] recommended that all Veterans in their care with PTSD have access to these evidence-based treatments. To meet this need, all psychotherapy providers in VA services who primarily served Veterans with PTSD were trained in either PE or CPT (or both) through formal workshops followed by a 6-month supervision consultation program [25, 26, 27, 28]. Moreover, the Department of Defense (DoD) and VA implemented post-deployment screening for mental health problems at all primary care visits [29]. As a result of this tremendous and coordinated investment, Veterans and active duty personnel are more likely than ever to be identified and referred to effective PTSD treatment.

Given this massive effort and associated expense, it is rather disconcerting that of those who attend the first session, 25-40% eventually drop out of PE or CPT prior to completion [13]. Thus, because PTSD symptoms persist over time in the absence of treatment, and in light of the tremendous resources directed toward training providers in evidence based treatment for PTSD [22], research to address the problem of dropout is essential. However, dropouts virtually always receive less research attention than treatment completers by the very nature of the fact that they frequently also drop out of the study within which the treatment is offered. Additionally, even when dropouts in treatment outcome research do agree to continue to participate in follow-up assessment, their numbers are relatively small because the original trials from which they dropped were statistically powered with respect to intent to treat or completer analyses, not dropout analyses.

Efforts to retain patients in, or return dropouts to evidence based treatment for PTSD have included leveraging technology to resolve barriers to care, such as

delivering treatment through telehealth, or even home telehealth. Specifically, delivering PE via telehealth was presented as a strategy to reduce dropout insofar as telehealth addresses logistical factors such as travel time, distance, and related costs, while reducing disparities in access to care for those in remote/rural areas [30, 31, 32]. However, despite the apparent logistical advantages of home telehealth-delivered treatment for PTSD, rates of dropout remained unchanged at about 26% [15]. Moreover, those in the telehealth condition reported that completing exposure based PTSD treatment was more difficult. That is, while evincing similar levels of improvement to standard in person care, participants receiving exposure based psychotherapy for PTSD reported increased anxiety and hypervigilance, particularly during in vivo exposure homework completion [15, 33].

Clearly, the problem of dropout from evidence based psychotherapy for PTSD will not be solved by telehealth alone. Fortunately, prior research indicates social support may lower attrition from psychotherapy [34, 35, 36], and formalized peer social support programs, often referred to as “peer navigation” services, enhance treatment engagement by creating a means by which peers who have completed treatment assist those currently in treatment [37, 38]. Along these lines, we interviewed Veterans who had dropped out from PE in an attempt to identify factors that might be useful in preventing or reversing dropout [15]. One consistent report from these Veterans was that in vivo exposure homework, a key treatment component of PE in which patients are required to approach previously avoided environmental stimuli because they remind the patient of the traumatic event and elicit significant anxiety, was particularly difficult to complete. Moreover, these patients reported that they might not have dropped out, and

might consider returning to treatment, if they had the support of a veteran peer who had successfully completed the treatment during in vivo exposure homework sessions. Thus, we hypothesized that peer social support, brought to bear directly during in vivo exposure homework, might be particularly useful when treating PTSD with PE delivered via home-based telehealth, potentially addressing, in part, the problem of dropout from PE while attending to aforementioned patient report of increased anxiety associated with PE treatment components in telehealth patients.

Using peers to enhance treatment success is by no means novel, and in fact, the VA has initiated a peer support program throughout its medical centers [39]. However, in these programs peers are typically used to enhance treatment engagement, facilitate treatment initiation, and offer extra-treatment support. Using peers directly to assist in core PTSD treatment components such as in vivo exposure homework taking place outside VA facilities has not been reported, and is actually specifically prohibited by most peer support program guidelines. Nonetheless, Veterans in the aforementioned dropout study [15] indicated that such peer support was consistent with the 'buddy system' training they had received in the military, and that the presence of a peer directly during in vivo exposure homework would have been sufficiently compelling to prevent their premature treatment termination.

In response to this feedback, we designed and subsequently assessed the feasibility of using peer support during in vivo exposure homework and found that: (1) offering peer support directly during a limited number of in vivo exposure homework sessions can re-engage dropouts from PE back into treatment; (2) Veterans who have successfully completed treatment are willing to serve as peers and offer support during

in vivo exposure homework to other Veterans with PTSD who are at risk of, or who have already dropped out of treatment; (3) satisfaction with such a program on the part of the peer and on the part of the patient is high [40]. The present study compliments aforementioned feasibility findings with preliminary evidence regarding symptom improvement among PE dropouts who returned to treatment with a peer offering verbal support directly during a limited number of in vivo homework assignments.

Methods

Overview

Participants who had dropped out from treatment offered through two RCT's comparing in person vs. home telehealth delivered PE were contacted by telephone and offered the opportunity to return to treatment, this time with the assistance of a peer who would meet them at in vivo exposure homework sites in the community and offer verbal support during in vivo exposure homework. This was described to participants as being roughly analogous to having a weight-lifting 'workout buddy' during in vivo exposure exercises, which were conceptualized as 'a mission they would face together, as they had been trained to do.' They also re-initiated PE with their former therapists in the same treatment delivery modality (i.e., in person or home based telehealth), and this therapist coordinated communication with the peer and patient. Peers were Veterans who successfully completed PE therapy and no longer meet PTSD diagnostic criteria (see [40] for extensive discussion of this peer program and its feasibility).

Procedures

Once a patient agreed to return to treatment with a peer who offered support during

in vivo exposure, they attended a session with their therapist wherein the exposure hierarchy was reviewed and a telephone call with the peer was held (i.e., on speakerphone so that both patient and therapist could communicate with peer). Patient, peer and therapist jointly identified one or two in vivo exposure items, the time and place homework would take place, and patient and peer agreed to meet at the exposure site. Both patients and peers were instructed to telephone the therapist following the first homework meeting to discuss how the process went, and to assure that the next in vivo session with the peer was scheduled. If both parties were willing, the program persisted with 3-4 meetings per week for 3-4 weeks of the 12 week PE protocol sessions.

Peers were trained to offer verbal support during exposure homework to help patients complete assignments and stay in the anxiety provoking situation for as long as they could tolerate. Peers were allowed to share their own recovery stories during in vivo homework if similarities were observed between patient and peer experiences of avoidance. Geographic proximity was the criteria used to pair peers with patients. Peers and patients were not permitted to drive together in their own vehicles, to go to each other's residences, shooting ranges or any other place evaluated as dangerous.

Participants

PE dropouts contacted for this study were 82 Veterans (75 male and 7 female) who had prematurely terminated evidence based treatment for PTSD and continued to meet PTSD diagnostic criteria at the point of dropout. Participants were male and female Veterans of Vietnam, Persian Gulf, and OIF/OEF conflicts, age 21 and older. Patients with psychosis or dementia were excluded from participation, but other forms of

psychopathology (e.g. depression) were not excluded. Approximately 35 to 40% of participants resided in rural areas. Of the original 82 dropouts from PE, 43 indicated their intention to return back to treatment with peer support when such an offer was made. Of these 43, 29 re-engaged in treatment. The remaining 14 continued to indicate an interest in returning to treatment but did not do so for reasons including relocation (5 of the 14), and lack of time off from work or family responsibilities. Demographic characteristics of the 29 who re-engaged in treatment are given in Table 1. A majority was black, male, and served in the OIF/OEF conflicts. Most were also employed, and lived relatively close to the VA hospital (30 miles or under).

-- Table 1 INSERT HERE --

Measures

Demographic variables were collected at baseline assessment in the parent studies, and included age, race, ethnicity, gender, marital status, educational level, income, service connection/disability rating, branch of service and war theatre served.

PTSD Checklist-Military (PCL-M) [41]. The PCL is a 17-item self-report measure of PTSD symptoms based on DSM-IV criteria. The PCL uses a 5-point Likert scale response format ranging from not at all (1) to extremely (5). Total scores on the PCL range from 17 to 85. A change of 10 points from the baseline score is considered clinically meaningful. The instrument is highly correlated with the Clinician Administered PTSD Scale ($r = .93$), has good diagnostic efficiency ($> .70$), and robust psychometrics with a variety of trauma [42].

Patient Health Questionnaire (PHQ-9) [43]. Is a self-report questionnaire used to screen, diagnose, monitor and measure the severity of depression. The tool rates the

frequency of the symptoms which factors into the scoring severity index. The symptoms are scored from not at all (0) to nearly every day (3). The instrument has a sensitivity of 88% and a specificity of 88% for major depression. The scores range from 5 (mild), 10 (moderate), 15 (moderately severe) and 20 (severe) depression.

Peer Support & Treatment Modality

The primary focus of study was the introduction of a supportive peer during 3-4 in vivo homework assignments per week for 3-4 weeks of the 12 week treatment. Peer support within PE treatment is supported by the social support evidence discussed previously and the actionable options recommended within the VHA [39]. A variable carried over from the parent studies was the delivery modality of PE: home-based telemedicine vs. standard, in-person office-based sessions.

Results

Measures of PTSD were collected every two weeks per VA guidelines for PTSD clinics and revealed the time course of therapeutic effects, as illustrated in Figure 1. PCL scores at week 0 of the peer support program averaged about 65 for both groups (Home Telehealth $x = 65.5$, $SD = 11.0$; In Person $x = 65.3$, $SD = 9.4$ and showed a typical pattern of early intensification, followed by gradual reduction at week 12 for both groups (Home Telehealth $x = 45.4$; $SD = 4.1$; In Person $x = 49.7$, $SD = 6.1$. Depression measures were only taken at week 0 (Home Telehealth $x = 19.8$, $SD = 6.4$; In Person $x = 15.3$, $SD = 3.8$) and week 12 (Home Telehealth $x = 9.4$, $SD = 0.2$; In Person $x = 9.1$, $SD = 0.2$), and reflected a reduction higher in intensity in the teleheath group, as illustrated in Figure 2.

-- INSERT Figures 1 and 2 HERE --

Cognizant of low power, a preliminary comparison of treatment response in terms of treatment delivery modality (i.e., Home Telehealth vs. In Person) was conducted using repeated measures ANOVAs comparing week 0 and week 12 in terms both PCL and PHQ-9 outcomes. These analyses revealed a significant effect of time, but not of treatment modality or the interaction between the two, indicating that participants who had dropped out but returned to treatment, this time with the assistance of a peer, evidenced significant reductions in PCL-IV scores by week 12, irrespective of group membership (see Table 2). Similarly, considering the PHQ-9 (see Table 3), there was a significant effect of time, in that both groups reported lower levels of depression by the end of peer assisted PE. There was also a significant between groups effect in that those receiving treatment via Home Telehealth reported higher week 0 PHQ-9 scores, but about the same week 12 PHQ-9 scores, thereby evincing an overall larger decline in scores.

--Tables 2 and 3 INSERT HERE –

Discussion

This study demonstrated potential utility of including peers directly during the in vivo exposure therapy homework component of PE. Specifically, dropout was reversed in 29 of 82 participants upon the offer of participation in the peer support program, and indices of PTSD and Depression evinced clinically significant reductions following treatment. These findings are impressive given that all participants had already dropped out of treatment, and would have ostensibly endured PTSD symptoms and associated

diminished quality of life for years or decades into the future, were this program not available. Although dropout was not entirely reversed, re-engaging 35% of dropouts, and subsequently achieving clinically significant improvement in these patients, offers a potentially important means by which to reduce address the primary shortcoming associated with evidence based therapies for PTSD, including Prolonged Exposure. Given decades of evidence in support of PE for PTSD, guidelines from National Center on PTSD, the Institute of Medicine, and the DoD and VA supporting PE, and the significant investment by the VA and DoD in providing this evidence based therapy to Veterans, findings that dropout can be effectively reversed are worthy of further study.

In the present feasibility study participants who dropped out of a clinical trial evaluating PE delivered in person vs. home based telehealth were simply offered the opportunity to try the same treatment again, this time with the social and verbal support, during a limited number of in vivo exposure homework episodes, by a peer who had been through the process. Peer training was brief, focused on the limits of their responsibility and safe conduct, and confined their role to that of supportive 'workout buddy' during exposures, offering encouragement to 'stick with the mission a bit longer'. This phrasing was actually used by peers and Veterans, who indicated that they approached exposures using the same mission focused teamwork that they had been trained to use as service members. Leveraging this team based, mission-focused effort appeared quite useful insofar as patients and peers described the process as building on their prior training.

Although reversing dropout is notable, the central clinical question remains one of symptom reduction. Indeed, psychological outcomes were improved. Participants in

PE delivered via home based telehealth or through traditional in person settings showed reduced an average PCL-M reduction of to 10-20 points, which is considered clinically significant. A similar reduction was observed for depression scores, with a slight advantage for patients in the telehealth condition due to their relatively higher level of symptomatology at baseline. An interesting observation is that both groups evinced a slight worsening of symptoms at week 4, perhaps coinciding with the time point at which participants shifted back to completed in vivo exposure homework independently for the remainder of the 12 week treatment, without the aid of the peer. This might be an indicator that the peer program was probably effective not because it made exposure homework easier, but because it made it more likely for exposure homework to be completed over time.

The results of this study are promising, particularly given the easily disseminated, brief training program for peers in the context of VA efforts to roll out peer programs across its system. Findings provide preliminary support indicating that peer-based social support is an effective, readily available tool to address difficulties related to dropout from exposure based therapy for PTSD. This study builds on a large body of work indicating the utility of peer based support across seemingly disparate health and mental health issues, including promoting academic engagement in students with autism [43], diabetes management [44], and HIV [45] to name a few. Moreover, results might have been even more impressive if the peer program were offered to those contemplating dropout, rather than to those who had already left treatment.

Limitations of the present study include the lack of a no-peer comparison group and subsequent random assignment to condition, the small sample size, and use of a

potentially atypical sample of Veterans who had, at least originally, consented to be part of an experimental clinical trial and who may differ from typical clinical patients. Moreover, the timing of this intervention (i.e., post dropout), may not be optimum insofar as it seems likely that offering peer support during exposure homework to those contemplating dropout, rather than waiting for them to drop out, may have prevented a greater proportion of early treatment termination relative to treatment re-engagement.

Future studies should build on this preliminary study using a sufficiently powered between groups design with an appropriate comparator (e.g., peer support offered outside of treatment components) so as to support causal inferences with respect to the utility of this type of peer support program. Moreover, dropouts from a standard VA PTSD clinic, rather than dropouts from a formal treatment outcome study should be used as participants to enhance generalizability. Finally, an experimental manipulation of timing (i.e., offering the program to those contemplating dropout, rather than waiting for dropout to occur) may be warranted insofar as it may be more effective to prevent, than reverse dropout.

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Table 1. *Demographics Characteristics of the 29 Participants returning to treatment.*

	Telehealth (n=12)	**In person (n=17)**	**Total (n=29)**
Age (years)	$\bar{x}$= 48.3 (SD=13.7)	$\bar{x}$= 47.7 (SD=12.0)	$\bar{x}$= 47.9 (SD=12.5)
Education (years)	$\bar{x}$= 13.6 (SD=1.2)	$\bar{x}$= 13.1 (SD=4.1)	$\bar{x}$= 13.3 (SD=3.15)
Gender			
Female	16.7%	41.2%	31.0%
Male	83.3%	58.8%	69.0%
Race			
Black	66.7%	70.6%	69.0%
White	33.3%	29.4%	31.0%
Marital Status			
Married	75.0%	47.0%	58.6%
Not married	25.0%	53.0%	41.3%
Employment			
Employed	58.3%	58.8%	58.6%
Unemployed/Retired	33.3%	29.4%	31.1%
Other	8.3%	11.8%	10.3%
War Era			
Persian Gulf/OEF/OIF	72.8%	75.0%	74.0%
Vietnam	28.2%	22.5%	25.0%
Other		2.5%	1.0%
Distance to VA Clinic			
Less than 30 miles	50.0%	88.2%	72.4%
More than 30 miles	50.0%	11.8%	27.6%

Table 2. *Repeated Measures Descriptive and Analysis of Variance (ANOVA) Results: PCL-M Scores week 0 vs. week 12*

Variable	*Mean*	*SD*	*n*
PCL-M Week 0 Telehealth	*65.50*	*11.02*	*12*
PCL-M Week 0 In Person	*65.29*	*9.41*	*17*
PCL-M Week 12 Telehealth	*45.39*	*4.18*	*12*
PCL-M Week 12 In Person	*49.73*	*6.12*	*17*

Source	*Df*	*SS*	*MS*	*F*	*p*
Within (Week 0 vs Week 12)	1	179511.25	179511.25	2577.34	.000
Between (Telehealth vs In Person)	1	175.97	175.97	2.34	.128
Within x Between	1	72.67	72.67	1.18	.287
Total	27	11053.13	75.19		

Note: PCL-M: Post-traumatic Stress Disorder Checklist-Military Version

Table 3. *Repeated Measures Descriptive and ANOVA Results: PHQ-9 Scores week 0 vs. week 12*

Variable	*Mean*	*SD*	*n*
PHQ-9 Week 0 Telehealth	19.8	6.4	12
PHQ-9 Week 0 In Person	15.3	3.8	14
PHQ-9 Week 12 Telehealth	9.4	0.2	12
PHQ-9 Week 12 In Person	9.1	0.2	14

Source	*df*	*SS*	*MS*	*F*	*p*
Within (Week 0 vs Week 12)	1	889.36	889.36	62.51	.000
Between (Telehealth vs In Person)	1	77.30	77.30	5.27	.031
Within x Between	1	57.10	57.10	4.01	.057
Total	24				

Note: PHQ-9: Patient Health Questionnaire, 9th edition.

Figure 1: *PCL-M scores of PE dropouts who returned to therapy with assistance of a Peer*

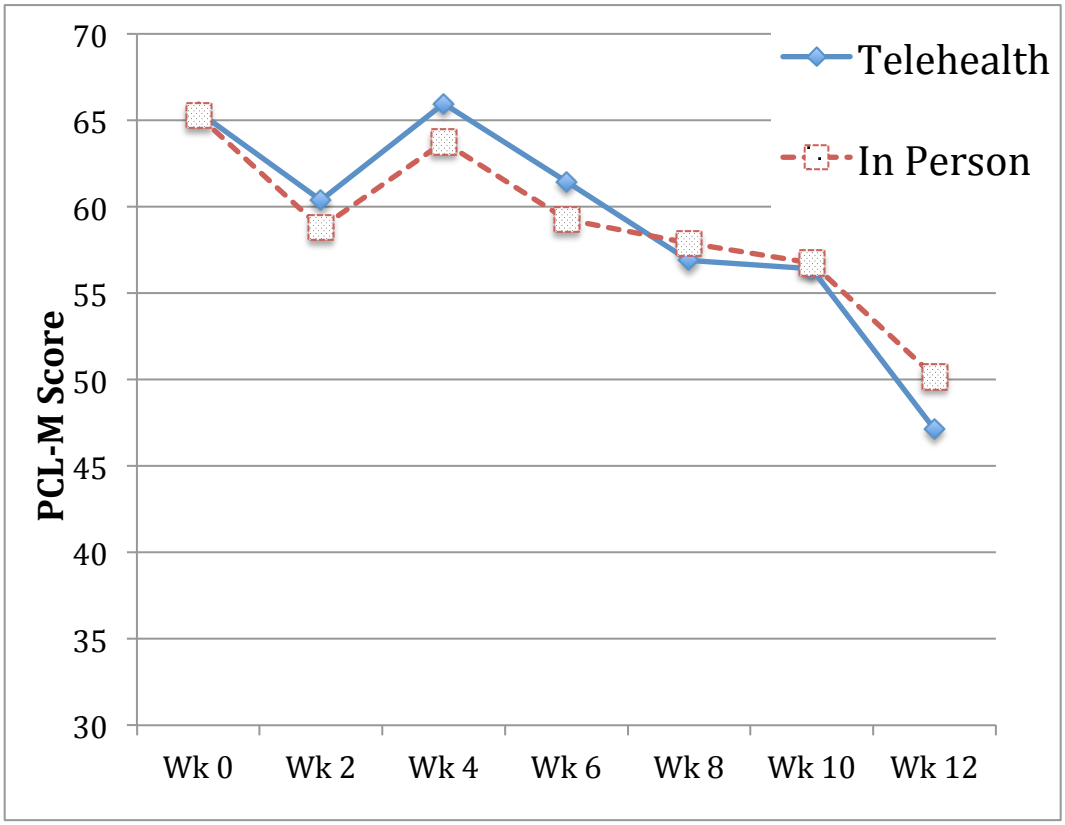
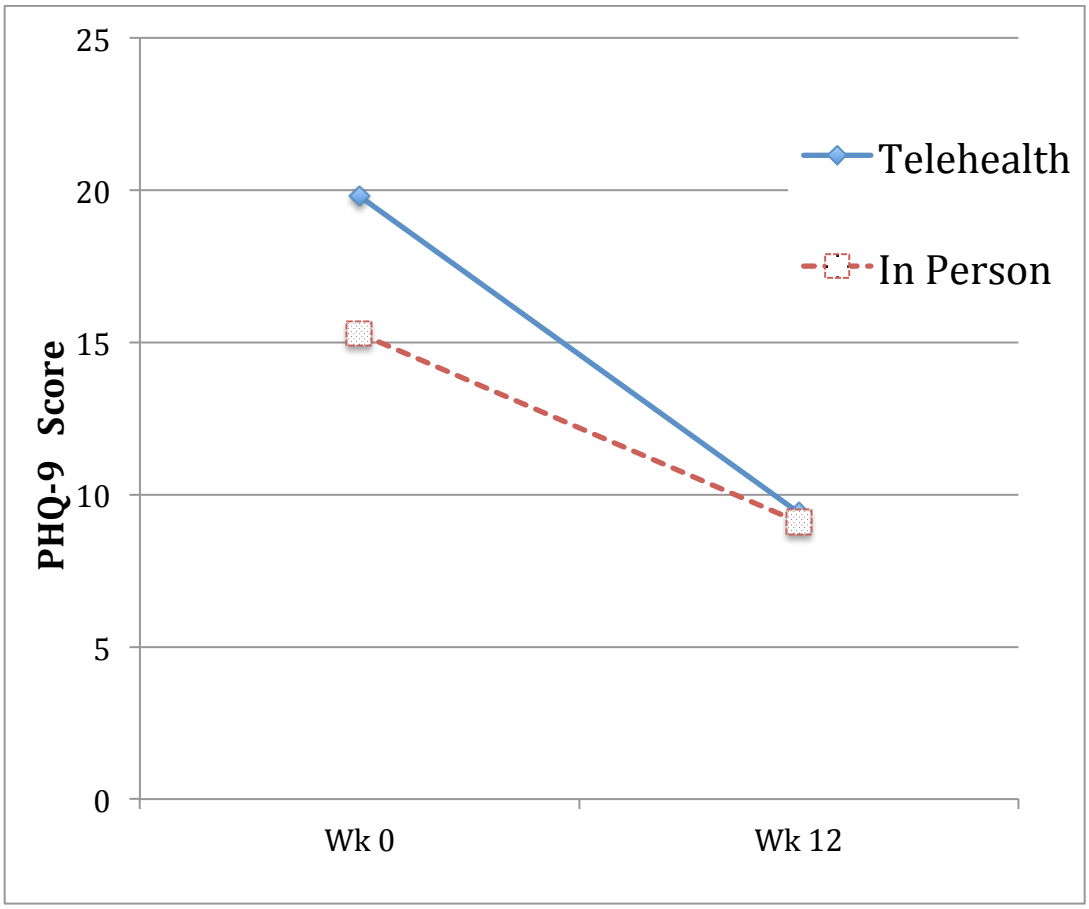


Figure 2: *PHQ-9 scores of PE dropouts who returned to therapy with assistance of a Peer*



IV. DISCUSSION

The primary goal of this study was to reverse Veteran dropout from PE therapy for PTSD by providing peer support directly during that PE treatment component which Veterans indicated was most difficult: in vivo exposure homework. Recruiting Veterans to help other Veterans in treatment is consistent with the existing peer support model being disseminated throughout the VHA Hospitals in the USA to enhance treatment engagement. However, the present program extends this practice by offering direct peer support during PTSD treatment components. Implementing peer support directly during PE exposure homework seemed a natural way to complement in vivo sessions for two reasons: first there is a long history of providers accompanying patients during exposure homework for other anxiety disorders when the therapeutic activity is relatively challenging, or the patient needs extra help to complete the task (see Craske & Barlow, 2014 for agoraphobia; Hellström & Öst, 1995 for phobia; Mavissakalian & Michelson, 1996 for panic; Tolin et al., 2007 for Obsessive Compulsive Disorder). Second, we hypothesized that social support offered by peers who had been through treatment themselves could be a powerful motivator for Veterans to return to treatment, particularly for those who received treatment via telehealth and thus lacked the social interaction with the therapist that often accompanies clinic-based care. There is evidence supporting the position that social support is important to treatment success. Specifically, Price et al. (2013) studied Veterans in treatment and found that all forms of social support, including emotional support, positive social interactions, and tangible and specific support related to treatment positively impacted outcome. Moreover, findings that social support is correlated with physical and mental health wellness,

recovery and resilience, particularly in Veterans, has led the DoD and VHA to more proactively involve families and communities (e.g., peers) in care (Sippel, Pietrzak, Charney, Mayes & Southwick, 2015).

The Veterans currently receiving evidence based treatment for PTSD mostly represent a younger cohort that often has families with school age children, and spouses that are busy, working, or in school. As such, typical sources of social support for evidence based psychological treatments and its associated inter-session homework are often lacking. This is particularly the case if families cannot, will not, or do not know they should have a role in the process of treatment and recovery with the patient. For example, if family members are not informed of the frequently observed fact that in vivo homework often increases overall levels of anxiety, they may discourage the Veteran from completing their homework, noting '*it only seems to make your symptoms worse*.' This type of interaction may have good intentions at its base, but it is not supportive of treatment and often results from family not being included at any point in treatment consultation.

Alternatively, in many cases Veterans do not want their families or friends to be aware of specific issues of their trauma, as these details may be horrifying, violent, stigmatizing, and sometimes difficult to comprehend by others who have not experienced that which combat Veterans have endured. Thus, they may only confide to their therapists or peers about their memories of combat and related traumas. This is why support offered by peers is potentially so important. Moreover, such support may help Veterans who are at risk of dropping out actually complete treatment, or help those who have already dropped out of treatment return to care. To begin to test this

assumption, the present investigation was developed with the following three main objectives: to illustrate the feasibility of a peer support program aimed at bringing dropouts from PE treatment back to therapy with respect to safety and logistical issues; to determine how satisfied Veterans and peers were with this approach to treatment re-engagement, and to determine if Veterans who returned to treatment showed reduced PTSD symptoms when treatment was delivered in either in person or home telehealth formats.

With respect to the first 'feasibility' objective, which was covered in manuscript 1 (Hernandez-Tejada et al., 2017), the hypothesis was that at least 25% would agree to return to treatment. In fact, fully 52% indicated that they would consider returning to treatment at the offer of having peer support during in vivo exposure and 35% actually did so. There were no adverse events and Veterans indicated that they were comfortable sharing details about, and confronting stressful situations with the peer. Patients and peers also reported minimal logistical problems, leading to the conclusion that the program was highly feasible. The second manuscript (Hernandez-Tejada et al., under review a) specifically focused on the second 'satisfaction' objective, again from the perspective of both patient and peer. The hypothesis was that both participants and peers would report generally good to high levels of satisfaction. Expectations were exceeded and satisfaction reports were very high from patients in both telehealth and in person mediums, and even higher rates of satisfaction were reported by the peers that assisted them. Moreover, both groups reported that they felt that the program was of high value. Finally, the third manuscript (Hernandez-Tejada et al., under review b) addressed the question of whether those who dropped out of treatment and

subsequently re-engaged in PE with the assistance of a peer evidenced symptom improvement, and whether such improvement differed in terms of treatment delivery modality (i.e., in person or home telehealth). Hypotheses were that symptom reduction from the beginning to the end of the PE + Peer Support program would be evident, and that there would be a slightly greater reduction of symptoms in the home telehealth group (noting that statistical power was low for this analysis). The hypothesis was supported in that both telehealth and in person participants showed significant reductions in PTSD and depression symptomatology relative to symptom scores collected at the time of treatment dropout, independent of the mode of treatment delivery. However, although the PTSD symptom scores were slightly lower at post treatment for the telehealth group relative to the in person group, the second hypothesis was not supported in that this difference was not significantly different, very likely due to low sample size power of this study.

The findings from this project are extremely relevant to future research on treatment dropout and peer interventions. First, as mentioned earlier, most of the Veterans were younger and not classified as eligible to receive disability pension, and therefore the majority were working or going to school. Consequently, scheduling challenges were significant, and many obstacles to consistently engaging in PTSD treatment were present for these Veterans. The VHA has advanced telehealth as a means by which to address these and other logistical issues, such as travel time for those living far from clinics. However, although telehealth delivered psychological treatments seemed to be a viable means by which to overcome logistical obstacles to care for these Veterans, our research and that of others indicated that (1) overall rates

of dropout were not reduced and (2) telehealth delivered treatment was associated with increased hypervigilance and difficulty with in vivo exposure treatment components (Hernandez, et al., 2014; Tuerk et al., 2010).

Thus, given the high rate of dropout from evidence based PTSD psychological treatments in general, and given the increased VHA dissemination of telehealth delivered psychological treatments and the consequent increased difficulties with in vivo exposure homework in particular, a peer based program that addresses both of these problems is very timely. Indeed, the high rate of dropout from evidence based psychological treatments demands attention and discussion among providers and mental health care policy makers about how to adjust the services provided to those suffering from PTSD to enhance engagement and prevent early attrition from care. The VHA efforts related to peer support programs suggests that policy makers think peers may be helpful in addressing this issue. Indeed, the toolkit for peer specialists developed by the VA New England and the VA Pittsburgh Healthcare System Peer Resource Center (Chinman, Henze, & Sweeney, 2013), outlines ways that peers can help to address problems at both the individual patient level and at the level of the overall system. For example, at the individual level, peers are effective in reducing social isolation and helping to make connections and referrals to treatment services (i.e., 'treatment engagement'). At the system level, peers can help Veterans who feel powerless and demoralized by frustrating VHA experiences to resolve these issues. In these instances, peers act as role models, engaging with the other Veteran and the system to make treatment more relevant, or solving problems related to reimbursement or access. However, the present project took the role of peer even further, beyond

general support at individual and systemic levels, to direct support of specific treatment components. Not only had this not been done before, but most peer support programs specifically prohibited using peers in this way, for reasons that appear more associated with what could go wrong (e.g., a peer blaming him or herself for a patient suicide) than what could go right (e.g., a Veteran facing a lifetime of untreated PTSD symptoms returning to treatment with peer support). The present work directly addressed feasibility concerns associated with the former position, indicating that earlier fears related to involving peers directly in treatment may have been overstated.

This study showed that, despite logistical issues, busy lives, and treatment obstacles, when given the opportunity to reengage in treatment with a peer, a large proportion of Veterans chose to do so. This leads us to conclude that their need for treatment remained present, that these Veterans were interested in their resolving their PTSD related symptoms and problems, but that standard treatment services lacked the specific ingredient that prior research, and even common sense, indicates is so important: social support during and related to treatment components. Moreover, the almost universal highest satisfaction ratings by both peers and Veteran patients indicate that the program was well received. The concept of obtaining treatment related support from someone who "speaks one's own language," has experienced similar situations, and has a similar military training background appeared to be very compelling, and very satisfying to both Veterans and those peers who volunteered to help them.

Moreover, in addition to high feasibility and high satisfaction, the program was also associated with symptom reduction following PE, indicating that even those who experienced early treatment failure can benefit from returning to treatment if their social

support needs are appropriately addressed. This finding was evident for both Veterans receiving treatment in person, and those receiving treatment via telehealth, despite the latter groups' early reports that they experienced greater distress with treatment procedures.

A clear limitation of the study is its limited sample size, small number of female Veterans treated, and the lack of a randomly assigned comparison group (i.e., a group contrasting the offer of PE alone vs. PE + Peer Support). Sample accrual and subsequent size and gender diversity was limited by the amount of time necessary to launch this type of peer support program, which sought to involve peers in a way directly contrary to existing policy. Much of the first year of the study was spent addressing the concerns of the Institutional Review Board. Once those concerns were addressed and the excellent suggestions of reviewers integrated into our protocol (e.g., peers and patients should not drive together so that legal liability in the case of an auto accident is minimized), we were given permission to begin recruitment. By this time, our available pool of dropouts had diminished somewhat, due to relocation, new jobs, trying other types of treatment (e.g., yoga), or perceptions that they were treatment failures and would always fail. With respect to the lack of a comparison group, using a randomized controlled design comparing PE with and without Peer Support would have allowed inferential statements of causality to be made about the peer program. Because we used a single arm clinical trial design, we do not know if Veterans returned to, and succeeded in treatment because of the presence of a peer, or if they would have returned and been successful on their own. We doubt the latter conclusion, because all dropouts are routinely called and invited to return to treatment 3 months post-dropout,

per clinic protocols, and none have elected to do so in the past two years, except those in this peer support study.

Future studies should use a randomized controlled trial design with a comparison group and a sufficiently powered sample size. Moreover, this peer support program may be even more effective if it were offered to patients who were contemplating dropout; that is, before they actually drop out of treatment. Using the program in this way, as a preventative intervention, may help to reduce current rates of dropouts more effectively than reversing dropout. Indeed, it would seem more likely that a person currently in treatment who is considering dropping out, but has not yet done so, could be more easily convinced to try the peer support program than one who has already formalized their decision to leave care.

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VI. APPENDICES

1. Informed Consent for Treatment

Department of Veterans Affairs **VAMC CHARLESTON**	**VA Research Consent Form** (Page 1 of 6)

Subject's Name: **Date:**

Principal Investigator:

Study Title:

A. PURPOSE AND BACKGROUND:
You are being asked to volunteer for a research study. The primary purpose of this project is to determine the utility of peer support specialists serving as supportive partners or 'workout buddies' for the in vivo exposure component of treatment. The exposure component is the part of treatment where people go to places that they have been avoiding because these places remind them of a traumatic event and cause anxiety. Exposure to these places, such as going to a department store where there may be crowds, under safe conditions can allow people to get used to the places and reduce avoidance and withdrawal. Sometimes, doing this exposure is easier with a supportive person who knows about exposure therapy and can offer encouragement like a workout buddy does when you are going to a gym. As such, we want to see if veterans who have either dropped out of exposure therapy PTSD treatment, or have expressed their intention to do so will give treatment another try if an exposure therapy 'workout buddy' helps during exposure assignments. This study is being conducted at the Charleston VA Medical Center, surrounding Community-Based Outpatient Clinics (CBOCs). It will involve approximately 20 participants receiving treatment and 20 peers.

B. PROCEDURES:
If you agree to be in this study, the following will happen:

1. You will then be asked some questions to assess your symptoms of PTSD and previous experience with exposure therapy in order to determine if you are eligible for the study. Once eligibility is determined, the baseline assessment will be completed. This baseline assessment is will be self-report questionnaires regarding mood, anxiety, and PTSD symptoms. Your medical or health records may be reviewed and researchers may need to discuss your health information with your treating physicians, if applicable.
2. If you have recently started taking any prescription medication, you will be asked to wait 4 weeks until you start the treatment so that the effects of this medication on you are stable and don't affect our results.
3. If you are eligible, you will receive exposure therapy treatment with assistance of a PE Peer, who will meet you at the place you are doing your exposure assignments for 3-4 in vivo exposure therapy assignments per week, for 3-4 weeks at the beginning of treatment. Treatment will consist of 8-12 therapy sessions, and involve (a)

psychoeducation (education offered to you about PTSD and better coping skills) about the common reactions to traumatic events, as well as explaining PE therapy, (b) repeated in vivo exposure with a 'workout buddy' for the first 3-4 weeks (exposure to situations or objects being avoided due to distress and anxiety, and (c) repeated, prolonged imaginal exposure to memories of the event(s). This type of therapy (PE) can help reduce fear and anxiety and eliminate the avoidant behavior, increasing the quality of life. You may terminate participation in the treatment portion of the study at any time without penalty. Also, you may select not to complete all portions of the exposure therapy.

4. After treatment, you will be asked to complete two additional self-report assessments. These will be once at the end of treatment (post-assessment) and then 3 months after treatment has ended. These assessments will measure your anxiety, depression, PTSD symptoms, and your overall satisfaction with the program.

C. DURATION:
You will receive 8-12 weekly sessions of exposure therapy treatment. These treatment sessions will last about 90 minutes each. As part of your treatment, you will be expected to complete exposure therapy activities, which will last from 20 minutes to 45 minutes each day. You will be assigned a 'workout buddy' for 3-4 weeks, at least once per week, to help you complete these exposure activities.

You will be asked to complete two self-report assessments over 3 months, which will take about 15 minutes each.

D. RISKS/DISCOMFORTS:
Because of the nature of the study you may become upset by questions asking about your mood and/or anxiety level. You may also experience some physical or emotional distress during the therapy sessions. If you do feel significant distress at any time, you may stop the study procedure and you may choose to not answer any questions during the assessment interview that you do not want to answer. There is some social risk if others see you entering the clinic. However, we try to minimize this by having you come directly to our offices, rather than checking in at the Mental Health check in counter. There are no economic risks. There are legal risks in that we are required by law to report homicidal intent and suicidal intent.

Subject's Name: **Date:**

Principal Investigator:

Study Title:

Your personal identifiers (name) are kept separate from your assessments. All assessments are kept in a locked file cabinet. Thus it would be very difficult for someone to match personal identifiers with the information you provide during the assessment and during treatment. Every effort will be made to keep your information protected from third parties.

E. BENEFITS:
There may be no benefit to you for participation in this study. You may experience a potential reduction in aversive psychological symptoms of anxiety and depression. Additionally, results from this study may benefit others in the future.

F. COSTS:
You will not be required to pay for medical care or services received as a participant in a VA research project except as follows: Some veterans are required to pay co-payments for medical care and services provided by VA. These co-payment requirements will continue to apply to medical care and services provided by VA that are not part of this study.

G. COMPENSATION:
You will not be paid for participating in this study.

H. ALTERNATIVES:
If you choose not to participate in this study, you could receive other treatments for your condition. The standard therapy for your condition is individual or group therapy, treatment by antidepressant, or anti-anxiety medications. You may receive this care at the Mental Health Clinic at the Charleston VAMC. You also may wish not to seek treatment at all. In addition, if you would like written descriptions of outcome studies of similar or related treatments, we can provide these to you.

I. DISCLOSURE OF RESULTS:
Results of this research will be used for the purpose described in the study. The information may be published, and if so, your information will not be identified and shall be protected within State and Federal Laws. We suspect that the information obtained in the study will take about 1 year to analyze. Once this has been done, the reports will be written, and we will

make these reports available to individuals who participate in this study upon request, as well as the Veterans Health Administration.

J. NEW INFORMATION:
If there are significant new findings during the course of the study, you will be notified.

K. VOLUNTARY PARTICIPATION/WITHDRAWAL:
Your participation in this study is voluntary. You may refuse to take part in or stop taking part in the study at any time. You should call at 843.789.7246, if you decide to do this. Your decision not to take part in the study will not affect your current or future medical care or any benefits to which you are entitled. The investigators and/or the sponsor may stop your participation in this study at any time if they decide it is in your best interest, if you do not follow the investigator's instructions, or if you fail to keep study visits. This may also occur if there is a protocol violation or early closure of the study.

L. CONFIDENTIALITY:
Your records from this study will be kept as confidential as possible under the law; however, absolute confidentiality cannot be guaranteed. If you participate in this study, the study team, members of the Medical University of South Carolina Institutional Review Board, and members of the VA Research and Development Office may have access to study records. In special cases, such as a physical threat to you or others, we may disclose personal information we have gathered from you to comply with legal requirements.

The investigators associated with this study, the sponsor, and the MUSC Institutional Review Board for Human Research will have access to identifying information. All records are subject to subpoena by a court of law.

M. STUDENT PARAGRAPH:
Your participation or discontinuance will not constitute an element of your academic performance nor will it be a part of your academic record at this Institution.

N. EMPLOYEE PARTICIPATION:

Subject's Name: **Date:**

Principal Investigator:

Study Title:

Your participation or discontinuance will not constitute an element of your job performance or evaluation nor will it be a part of your personnel record at this Institution.

CONSENT

Results of this research will be used for the purposes described in this study. This information may be published, but you will not be identified. Information that is obtained concerning this research that can be identified with you will remain confidential to the extent possible within State and Federal law. The investigators associated with this study, the sponsor, and the MUSC Institutional Review Board for Human Research will have access to identifying information. All records in South Carolina are subject to subpoena by a court of law.
The VA will provide necessary medical treatment to a research subject injured by participation in a research project. This requirement does not apply to treatment for injuries that result from non-compliance by a research subject with study procedures. If you sustain an injury as a direct result of your study participation, medical care will be provided by this VA Medical Center. Financial compensation is not available for such things a lost wages, disability or discomfort due to an injury.

Your participation in this study is voluntary. You may refuse to take part in or stop taking part in this study at any time. You should call the investigator in charge of this study if you decide to do this. Your decision not to take part in the study will not affect your current or future medical care or any benefits to which you are entitled.

The investigators and/or the sponsor may stop your participation in this study at any time if they decide it is in your best interest. They may also do this if you do not follow the investigator's instructions.

VOLUNTEERS STATEMENT

I have been given a chance to ask questions about this research study. These questions have been answered to my satisfaction. If I have any more questions about my participation in this study or study related injury, or if I have comments, concerns or complaints, I may

Subject's Name: **Date:**

Principal Investigator:

Study Title:

contact the VA Medical Center's Medical Director (843.789.7200) concerning medical treatment.

If I have questions, comments, concerns or wish to voice a complaint, I may contact the VA Research Compliance Officer at (843.789.7399).

If I have any questions about my rights as a research subject in this study I may contact the Medical University of SC Institutional Review Board for Human Research at (843.792.4148).

I agree to participate in this study. I have been given a copy of this form for my own records. If you wish to participate, you should sign below.

Signature of Person Obtaining Consent	Date	Signature of Participant	Date

2. PTSD Checklist – Military Version (PCL-M)

Instructions: Below is a list of problems and complaints that veterans sometimes have in response to stressful life experiences. Please read each one carefully, put an "X" in the box to indicate how much you have been bothered by that problem *in the last month*.

No.	Response	Not at all (1)	A little bit (2)	Moderately (3)	Quite a bit (4)	Extremely (5)
1.	Repeated, disturbing *memories, thoughts, or images* of a stressful military experience from the past?					
2.	Repeated, disturbing *dreams* of a stressful military experience from the past?					
3.	Suddenly *acting* or *feeling* as if a stressful military experience *were happening* again (as if you were reliving it)?					
4.	Feeling *very upset* when *something reminded* you of a stressful military experience from the past?					
5.	Having *physical reactions* (e.g., heart pounding, trouble breathing, or sweating) when *something reminded* you of a stressful military experience from the past?					
6.	Avoid *thinking about* or *talking about* a stressful military experience from the past or avoid *having feelings* related to it?					
7.	Avoid *activities* or *situations* because they *remind you* of a stressful military experience from the past?					
8.	Trouble *remembering important parts* of a stressful military experience from the past?					
9.	Loss of *interest in things that you used to enjoy?*					
10.	Feeling *distant* or *cut* off from other people?					
11.	Feeling *emotionally numb* or being unable to have loving feelings for those close to you?					
12.	Feeling as if your *future* will somehow be *cut short*?					
13.	Trouble *falling* or *staying asleep*?					
14.	Feeling *irritable* or having *angry outbursts*?					
15.	Having *difficulty concentrating*?					
16.	Being *"super alert"* or watchful on guard?					
17.	Feeling *jumpy* or easily startled?					

PCL-M for DSM-IV (11/1/94) Weathers, Litz, Huska, & Keane National Center for PTSD - Behavioral Science Division

3. PHQ-9

PHQ-9 — Nine Symptom Checklist

Patient Name _____ **Date** _____

1. Over the last 2 weeks, how often have you been bothered by any of the following problems? Read each item carefully, and circle your response.

   a. Little interest or pleasure in doing things
   Not at all **Several days** **More than half the days** **Nearly every day**

   b. Feeling down, depressed, or hopeless
   Not at all **Several days** **More than half the days** **Nearly every day**

   c. Trouble falling asleep, staying asleep, or sleeping too much
   Not at all **Several days** **More than half the days** **Nearly every day**

   d. Feeling tired or having little energy
   Not at all **Several days** **More than half the days** **Nearly every day**

   e. Poor appetite or overeating
   Not at all **Several days** **More than half the days** **Nearly every day**

   f. Feeling bad about yourself, feeling that you are a failure, or feeling that you have let yourself or your family down
   Not at all **Several days** **More than half the days** **Nearly every day**

   g. Trouble concentrating on things such as reading the newspaper or watching television
   Not at all **Several days** **More than half the days** **Nearly every day**

   h. Moving or speaking so slowly that other people could have noticed. Or being so fidgety or restless that you have been moving around a lot more than usual
   Not at all **Several days** **More than half the days** **Nearly every day**

   i. Thinking that you would be better off dead or that you want to hurt yourself in some way
   Not at all **Several days** **More than half the days** **Nearly every day**

2. If you checked off any problem on this questionnaire so far, 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**

4. Barriers To Therapeutic Exposure Participation Scale (Subscale: Satisfaction in red)

POST PID: _____ Date: _____

1

Barriers to Therapeutic Exposure Participation Scale

Directions: Participating in therapeutic exposure is often difficult because of the many demands it has on individuals and families such as work, and other activities. It is important to understand different factors and how they affected your participation in PE treatment. Please answer the items below that will be used to help us make our treatment better. As you answer the questions, please think about your own situation only and things that you felt about participating in exposure treatment. (All answers are completely confidential.)
Below are common problems that come up in treatment. For each one, place a check or "X" for the answer that applies to you.

Example:

_____	___X___	_____	_____	_____
Never a problem	Once in a while	Sometimes a problem	Often a problem	Very often a problem

1. Transportation (getting a ride, driving, taking a bus) to a session.

_____	_____	_____	_____	_____
Never a problem	Once in a while	Sometimes a problem	Often a problem	Very often a problem

2. I was in other activities (sports) that made it hard to attend a session.

_____	_____	_____	_____	_____
Never a problem	Once in a while	Sometimes a problem	Often a problem	Very often a problem

3. Scheduling of appointment times was a problem.

_____	_____	_____	_____	_____
Never a problem	Once in a while	Sometimes a problem	Often a problem	Very often a problem

3.a Scheduling of in vivo exposure with peer support was a problem

_____	_____	_____	_____	_____
Never a problem	Once in a while	Sometimes a problem	Often a problem	Very often a problem

4. Treatment lasted too long (too many weeks).

_____	_____	_____	_____	_____
Not too long	Lasted a little too long	Lasted too long	Lasted much too long	Lasted very much too long

5. Treatment was in conflict with another of my activities (classes, job, friends).

_____	_____	_____	_____	_____
Never	Once in a while	Sometimes	Often	Very often

6. Treatment did not seem necessary.

_____	_____	_____	_____
I did not need treatment	I needed treatment a little	I needed treatment a lot	I needed treatment quite a lot

7. I did not like the therapist.

_____	_____	_____	_____	_____
I liked the therapist a lot	I liked the therapist very much	I liked the therapist a little	I did not like the therapist at all	I did not like the therapist

7.a I did not like the peer support specialist.

_____	_____	_____	_____	_____
I liked the Peer a lot	I liked the peer very much	I liked the peer a little	I did not like the peer at all	I did not like the peer

8. I felt that treatment cost too much.

_____	_____	_____	_____	_____
Cost was fine	Cost was about right	Cost was sort of high	Cost was too high	Cost was much too high

9. Treatment was not what I expected.

_____	_____	_____	_____	_____
Just like I expected	Mostly what I expected	Sort of what I expected	A little of what I expected	Not at all what I expected

10. Information in the session and handouts seemed confusing.

_____	_____	_____	_____	_____
Not confusing at all	A little confusing	Somewhat confusing	Often confusing	Very often confusing

11. I had trouble understanding treatment.

_____	_____	_____	_____	_____
No trouble understanding treatment	Had a little trouble	Sometimes I had trouble	had trouble	Had a lot of trouble

12. During the course of treatment I experienced a lot of stress in my life.

_____	_____	_____	_____	_____
No stress during treatment	A little bit of stress	Some stress	Moderate stress	A lot of stress

13. I lost interest in attending sessions.

_____	_____	_____	_____	_____
No, I didn't lose interest at all	Yes, a little	Yes, I lost a moderate amount	Lost most of my interest in coming	I lost all of my interest

14. I was sick on the day when a session was scheduled.

_____	_____	_____	_____	_____
Never a problem	Once in a while	Sometimes a problem	Often a problem	Very often a problem

15. Crises at home made it hard for me to attend sessions.

_____	_____	_____	_____	_____
Never a problem	Once in a while	Sometimes a problem	Often a problem	Very often a problem

16. Crises at work made it hard for me to attend sessions.

_____	_____	_____	_____	_____
Never a problem	Once in a while	Sometimes a problem	Often a problem	Very often a problem

17. Crises with my children made it hard for me to attend sessions.

_____	_____	_____	_____	_____
Never a problem	Once in a while	Sometimes a problem	Often a problem	Very often a problem

18. I felt I had to give too much personal information to the therapist.

_____	_____	_____	_____	_____
Never a problem	Once in a while	Sometimes a problem	Often a problem	Very often a problem

18.a I felt I had to give too much personal information to the peer support specialist.

_____	_____	_____	_____	_____
Never a problem	Once in a while	Sometimes a problem	Often a problem	Very often a problem

19. Treatment added another stressor to my life.

_____	_____	_____	_____	_____
No added stress from treatment	A little bit of added stress	A moderate amount of added stress	A good deal of added stress	Treatment added a great deal of stress

20. I felt treatment did not seem as important as the sessions continued.

_____	_____	_____	_____	_____
As important	A little less Important	Less important	No longer as important	Sessions not important at all

21. I felt this treatment was more work than expected.

_____	_____	_____	_____	_____
Not more work than expected	A little more than expected	More than expected	Quite a bit more than expected	Very much more work than expected

22. The atmosphere of sessions made it uncomfortable for appointments.

_____	_____	_____	_____	_____
No, the atmosphere was fine	I was a little uncomfortable	I was uncomfortable	I was uncomfortable quite a bit	It was very uncomfortable

22a. The atmosphere of the clinic or , for in home sessions, the atmosphere created by using the ipad made it uncomfortable for appointments.

_____	_____	_____	_____	_____
No, the atmosphere was fine	I was a little uncomfortable	I was uncomfortable	I was uncomfortable quite a bit	It was very uncomfortable

24. I did not feel that I had enough to say about what goes on in treatment.

_____	_____	_____	_____	_____
Never a problem	Once in a while	Sometimes a problem	Often a problem	Very often a problem

25. I feel treatment did not focus on my life and problems.

_____	_____	_____	_____	_____
Treatment related to my problems	A little related to my problems	Not really related to my problems	Treatment was unrelated to my problems	Treatment was very unrelated

26. The therapist did not seem confident that treatment would work for me.

_____	_____	_____	_____	_____
Never a problem	Once in a while	Sometimes a problem	Often a problem	Very often a problem

26a. The peer support specialist did not seem confident that treatment would work for me.

_____	_____	_____	_____	_____
Never a problem	Once in a while	Sometimes a problem	Often a problem	Very often a problem

27. The therapist did not seem confident in my ability to carry out homework.

_____	_____	_____	_____	_____
Never a problem	Once in a while	Sometimes a problem	Often a problem	Very often a problem

27a. The peer support did not seem confident in my ability to carry out homework.

_____	_____	_____	_____	_____
Never a problem	Once in a while	Sometimes a problem	Often a problem	Very often a problem

28. I have new or different problems.

_____	_____	_____	_____	_____
No new problems	A few new problems	Some new problems	Quite a few new problems	Many new problems

29. I seem to have improved; therefore, treatment was no longer seems necessary.

_____	_____	_____	_____	_____
I improved a lot	I improved	I improved a little	Not improved a lot	I did not improve at all

30. Treatment did not seem to be working.

_____	_____	_____	_____	_____
Treatment helped a lot	Treatment helped most of the time	Helped a little	Hardly ever helped	Treatment did not help at all

31. There was bad weather and this made having a session a problem.

_____	_____	_____	_____	_____
Never a problem	Once in a while	Sometimes a problem	Often a problem	Very often a problem

32. I do not feel the therapist supported me or my efforts.

_____	_____	_____	_____	_____
Therapist was very supportive	Supportive most of the time	Supportive	Sometimes supportive	Therapist was never supportive

32.a I do not feel the peer support specialist supported me or my efforts.

_____	_____	_____	_____	_____
Therapist was very supportive	Supportive most of the time	Supportive	Sometimes supportive	Therapist was never

33. The homework assigned for me to do as part of this treatment was much too difficult.

_____	_____	_____	_____	_____
Never too Difficult	Sometimes too difficult	Too difficult on average	Often too difficult	Very often too difficult

34. I did not have time for the assigned homework.

_____	_____	_____	_____	_____
Never a problem	Once in a while	Sometimes a problem	Often a problem	Very often a problem

35. There was always someone sick in my home.

_____	_____	_____	_____	_____
Never a problem	Once in a while	Sometimes a problem	Often a problem	Very often a problem

36. The therapist did not call often enough.

_____	_____	_____	_____	_____
Right amount of calling	Called once in a while	Called sometimes	Called only a few times	Therapist never called

37. Getting child care so I could participate in the sessions.

_____	_____	_____	_____	_____
Never a problem	Once in a while	Sometimes a problem	Often a problem	Very often a problem

38. Finding a place to park for sessions outside the home.

_____	_____	_____	_____	_____
Never a problem	Once in a while	Sometimes a problem	Often a problem	Very often a problem

39. I had a disagreement with my husband, boyfriend, or partner about whether I should participate in treatment at all.

_____	_____	_____	_____	_____
Never a problem	Once in a while	Sometimes a problem	Often a problem	Very often a problem

40. I was too tired after work to participate in a session.

_____	_____	_____	_____	_____
Never a problem	Once in a while	Sometimes a problem	Often a problem	Very often a problem

41. I was too tired after school to participate in a session.

_____	_____	_____	_____	_____
Never a problem	Once in a while	Sometimes a problem	Often a problem	Very often a problem

42. My job got in the way of having a session.

_____	_____	_____	_____	_____
Never a problem	Once in a while	Sometimes a problem	Often a problem	Very often a problem

43. Treatment took time away from spending time with my children.

_____	_____	_____	_____	_____
Never a problem	Once in a while	Sometimes a problem	Often a problem	Very often a problem

44. Treatment took time away from spending time with my spouse/partner.

_____	_____	_____	_____	_____
Never a problem	Once in a while	Sometimes a problem	Often a problem	Very often a problem

45. I had trouble with other family members at home, which made it hard to participate in treatment.

_____	_____	_____	_____	_____
Never a problem	Once in a while	Sometimes a problem	Often a problem	Very often a problem