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**A SYSTEMATIC REVIEW OF PSYCHOLOGICAL
TREATMENTS FOR COMBAT-RELATED PTSD**

by

Benson G. Munyan III

**Thesis submitted in partial fulfillment
of the requirements for the degree**

of

DEPARTMENTAL HONORS

in

**Psychology
in the Department of Psychology**

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A Systematic Review of Psychological Treatments for Combat-Related PTSD

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Abstract

With ongoing military operations spanning the globe, a new population of combat veterans is emerging. Posttraumatic stress disorder is an enormous issue for veterans, and knowing the status of psychosocial treatments for it seems necessary. The current study seeks to provide a more comprehensive description of the current status of outcome research for combat-related posttraumatic stress disorder, including treatments being utilized, attrition rates, percent responders/nonresponder, and population conflict (i.e., OIF, OEF, Vietnam). The literature was systematically reviewed and 10 randomized controlled trials were identified that focused solely on veteran populations with posttraumatic stress disorder. Treatments utilized in these studies included Trauma Maintenance Therapy, Exposure Therapy, Cognitive Processing Therapy, as well as others. The average dropout rate of the studies examined was 21%, with rates up to 38%. Furthermore, 50% of the studies reviewed utilized "completer" data, instead of the Intent-to-Treat (ITT) model which has notable implications for the generalizability of the findings. Non-responders at post ranged from 19% to 94%, with similar results at follow-up. The implications of these results are discussed and recommendations for future directions are provided.

Introduction

Posttraumatic stress disorder (PTSD) is a severe anxiety disorder that can result from exposure to traumatic events. According to the *Diagnostic and Statistical Manual of Mental Disorders-TR* (DSM-IV-TR; 2000), PTSD is comprised of four main components: (1) exposure to a traumatic event; (2) persistent psychological and/or physiological re-experiences of the event; (3) persistent avoidance of trauma reminders and numbing of general responsiveness; and (4) persistent symptoms of increased arousal that were not present prior to the event. While individuals can develop PTSD in response to exposure to various life threatening events (e.g., rape, abuse, car accident), those who develop PTSD in response to combat related events have been shown to have a poorer prognosis in treatment compared to other types (Creamer, Morris, Biddle & Elliott, 1999). Furthermore, military personnel are among the most at-risk populations for exposure to trauma and subsequent development of posttraumatic stress disorder, making this an exceptionally vulnerable population (Prigerson, Maciejewski, & Rosenheck, 2001; Schlenger et al., 2002).

Since the initiation of the Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) in 2001, nearly 1.64 million U.S. troops have been mobilized to Iraq and Afghanistan (Adamson et al., 2008). With these ongoing, prolonged military engagements, research suggests that a new population of combat veterans with high levels of PTSD is emerging (Hoge, Auchterlonie, & Milliken, 2006; Hoge et al., 2004). Research also indicates that of OIF and OEF veterans who have received a mental health diagnosis, many have been diagnosed with two or more disorders. In one study, of those receiving mental health diagnoses

after deployment, 52% suffered from Combat-Related PTSD (CR-PTSD; Seal, Bertenthal, Miner, Sen & Marmar, 2007).

Additionally, veterans with psychiatric disorders perceive greater stigma and barriers to care than other veterans and service members (Pietrzak, Johnson, Goldstein, Malley & Southwick, 2009). For example, Hoge et al. (2004) found that of veterans who met criteria for a mental disorder on a brief diagnostic screener, only 38-45% indicated an interest in receiving help. Stigma affects veterans' willingness to seek, engage in, and complete treatment. Further, although attrition rates among CR-PTSD treatments have not been explored systematically, a cursory review of the literature suggests attrition is problematic. For example, in a recent study by Tuerk et al. (2011), 37% of veterans failed to complete treatment for CR-PTSD. Additional research into attrition among CR-PTSD treatments is needed in order to determine how problematic attrition is in the treatment of CR-PTSD and how this compares to the attrition of other anxiety disorder treatments. Moreover, although much research has been conducted on the effectiveness of PTSD treatments, the wide variability in reporting practices, definitions, criteria, and analyses make it difficult to compare outcomes across studies. Another difficulty currently facing treatment of CR-PTSD is the lack of research examining CR-PTSD as a specific population; many meta-analyses examining PTSD treatments combine those suffering from CR-PTSD with other types of trauma. Without further investigation into these areas, the treatment research for CR-PTSD can be potentially misleading. Thus, the purpose of the current study is to provide a more comprehensive description of the current status of outcome research for CR-PTSD. Specifically, the proposed study aims to answer the following questions:

- (1) What psychosocial treatments have been evaluated for CR-PTSD?

- (2) How are researchers defining treatment success and what criteria are researchers using to classify responders versus non-responders?
- (3) What percent of combat veterans are responding and not responding to treatments for CR-PTSD?
- (4) What is the attrition rate among CR-PTSD treatments?

Methods

A comprehensive literature review was conducted utilizing the terms “veterans, treatment, outcomes, combat, and posttraumatic.” Results were then cross-referenced with previously published meta-analyses on PTSD. Only studies examining a veteran population using a controlled (CT) or randomized controlled design (RCT) were included in the current review.

Each study was reviewed with data collected on the following variables: (1) the number of participants, (2) participant’s theatre of operations, (3) PTSD diagnosis criteria, (4) treatment type, (5) number of treatment sessions, (6) treatment refusals prior to randomization, (7) treatment refusals after randomization and prior to beginning treatment, (8) treatment drop outs, (9) definition of treatment response, (10) percentage responders and non-responders at post-treatment, (11) percentage of responders and non-responders at follow-up, (12) length of time to follow-up, and (13) utilization of a completer or Intent-to-Treat (ITT) analysis. Studies that did not report any of the aforementioned variables were coded as unreported for that variable.

Results

Evaluated Treatments

To answer the first research question, 10 studies were identified as utilizing a RCT or CT model specifically investigating veterans with CR-PTSD. A total of 9 different treatments for CR-PTSD were implemented in the studies reviewed. Interventions included in the studies reviewed are Trauma Maintenance Therapy, various forms of Exposure Therapy including Prolonged Exposure, Imaginal Flooding, virtual-reality graded exposure, and both individual and group based Exposure Therapy, Trauma Focused group therapy, Present-Centered Therapy, Cognitive Processing Therapy, time-Limited Psychotherapy, self-management Cognitive Behavioral Therapy (CBT), supportive counseling, and Eye Movement Desensitization and Reprocessing (EMDR). The studies reviewed also utilized additional control treatments, including wait-controls, non-treatment seeking controls, and a treatment as usual, which consisted of various non-unified therapeutic strategies. As indicated previously, the format of therapy included individual, group, familial, and internet based formats. The populations of veterans surveyed in these studies were all veterans of various conflicts; six focused on veterans from Vietnam, three from OIF/OEF, and one on the Gulf War. The Korean War was also included in a single study.

Definition of Treatment Success

The current study determined that researchers are defining treatment success in a number of ways, as well as using different measures to distinguish between responders and non-responders. When taking into account the various outcome measures utilized across studies, treatment response was defined in seven different ways (see Table 1). Treatment success was typically defined as either a decrease in PTSD symptomology ($n = 4$) or loss of a PTSD diagnosis ($n = 2$). Other studies defined success as a reliable change on the Mississippi PTSD

Scale (M-PTSD) ($n = 1$), a reduced score on the PTSD Symptom Scale Interview Version ($n = 1$), a decrease in SUDS and self-reported PTSD symptoms ($n = 1$), and the last study inspected scores on multiple measures to determine participant responder status.

As previously mentioned, the measures used to determine responder status varied considerably within the studies examined. Specifically, five studies utilized the Clinician Administered PTSD Scale (CAPS) to assess response, four of which defined response as a decrease in symptomology and one of which defined response as a loss in PTSD diagnosis based on this measure. Examples of the observed decreases in symptomology included a 10-point decrease in CAPS ($n = 2$), clinically meaningful reductions in CAPS ($n = 3$), or a 30% percentage based decrease in CAPS ($n = 1$). Another study defined response as a loss of diagnosis based on the Impact of Event Scale (IES) measure. The remaining studies utilized reductions in symptomology across different measures to define participants as responders or non-responders. One study utilized a reduction on the Clinical Global Impression of Improvement (CGI-I) of ≤ 2 , one used PTSD symptom reduction according to the PTSD Symptom Checklist located within the Jackson Structured Interview, one utilized the Behavior Avoidance Test (BAT), and the last study used the PTSD Symptom Scale Interview Version.

Percent Nonresponders

To answer our third research question regarding CR-PTSD non-responders, we calculated the percentage of individuals who did and did not meet treatment success according to each specific study's definition of treatment response. The percent of non-responders resulted in a range from 30%-94%, with an average treatment nonresponder rate of 54% at posttreatment. Seventy percent of studies ($n = 7$) reported follow-up data, with the length of follow-up ranging

from one month to 12 months. Again using each specific study's definition of treatment response, the percent of non-responders at follow-up ranged from 31%-100%, with an average treatment non-responder rate of 39%.

Treatment Attrition

Initially we wanted to investigate the percent of treatment refusals both prior to randomization and following randomization (but before treatment began) as well as dropout rates once treatment began. However, of the 10 studies reviewed, only 60% ($n = 6$) reported treatment refusal rates prior to randomization. Results showed an average refusal rate of 13% prior to randomization with a range from 1.4% to 22%. Four (40%) also included treatment refusal rates post-randomization, which ranged from 2% to 22% ($M = 13%$). For those not specifically reporting these numbers, the percentage of refusals was calculated by dividing the number of refusals by the number of potential participants eligible at that point in each study. Of these studies, forty percent ($n = 4$) of the studies reported refusals that occurred post-randomization but prior to beginning treatment. For these post-randomization, pre-treatment refusals, refusal rates ranged from 16% to 23% ($M = 19%$).

Dropout was defined as the percent of treatment noncompleters once the intervention began. Dropout was calculated by dividing the number of noncompleters by the number of total participants who began treatment after randomization. Dropout was reported across all studies, with ranges from 0% to 38% and an overall average of 21%. Only two studies specifically addressed reasons for participant drop out. The most common reasons cited were participant relocation, deteriorating health, scheduling conflicts, and increasing substance abuse.

Analysis Types

Fifty percent ($n = 5$) of the studies reviewed based their response rates based off a "completer" model, with the other 50% ($n = 5$) utilizing the stronger ITT analysis.

Discussion

This study aimed to provide a more comprehensive description of the current status of outcome research for CR-PTSD among veteran populations. Results of our review reveal high methodological variability among existing CR-PTSD outcome research. Multiple primary measures were used with varying definitions of success among studies. Nine treatment methods were utilized across all studies, with the most "successful" study having approximately two thirds of its participants responding to treatment at follow-up. Such variability makes it difficult to draw comparisons across studies, integrate research findings, and formulate conclusions about existing CR-PTSD treatments. Furthermore, as mentioned earlier, 50% of the included studies ran "Completer" analyses and 50% ran ITT analyses. Given that ITT analyses are methodologically stronger, it becomes difficult, if not impossible, to make valid comparisons between studies utilizing these different forms of analysis. Additionally, not all variables examined by the current study were available for analysis. For instance, refusal rates were not reported in some studies ($n = 3$), and refusals post-randomization were only reported in four studies.

Despite the difficulty in making cross-study comparisons, a large percentage ($M = 39\%$) of participants in the studies examined were classified as nonresponders, with over a fifth (22%) of all parties interested in receiving treatment refusing prior to or post-randomization and an average of 16% dropping out once beginning treatment. Further, these numbers only take into

account those veterans who are seeking treatment and are not representative of the greater percentage of individuals who are in need of CR-PTSD treatments but who are not actively seeking treatment.

Another limitation of the existing CR-PTSD research is the uncertainty of how treatments impact overall quality of life (QOL). While it should be noted that some of the studies reviewed did investigate quality of life (e.g., Beidel et al 2011, Schnurr et al 2003, 2007, Ford et al 1997), the vast majority ($n = 6$) did not. The reduction of PTSD symptomology is certainly important; however, without an understanding of the impact of a treatment's effect on QOL, the functional effectiveness of CR-PTSD treatments is questionable. A sole reduction or loss of PTSD diagnosis does not necessarily indicate an overall increase in functionality or quality of life. To better understand the functional impact of treatments on veterans with CR-PTSD, future research should include both measures of PTSD symptomology as well as measures of QOL.

To combat the difficulty in interpreting results found in current PTSD literature, it is suggested that further research into PTSD treatment outcomes continue. Specifically, a large, randomized controlled trial conducted in conjunction with the Department of Veterans Affairs (VA) and the National Center for PTSD Research, where primary measures, definitions of response, and other variables can be controlled for with the specific aim of clarifying current treatment outcome trends would be invaluable. However, it is clear that such an undertaking would likely be prohibitively expensive, thus limiting the execution of such research. Regardless of the difficulties related to conducting large randomized controlled trials, one thing that is certain is the need for a more standardized process of evaluating PTSD treatments. The development of a gold-standard assessment method and generally accepted definition of

treatment success would greatly enhance PTSD outcome research by allowing researchers to make cross-study comparisons, and thus, increase our ability to investigate and understand treatment limitations and effectiveness. Further understanding of treatment limitations and effectiveness would allow researchers and clinicians to better identify appropriate treatments for different individuals, including identification of treatments more likely to retain participation and those more likely to result in improvement. A movement towards a standardized process of treatment evaluation by no means suggests that continued development of PTSD assessment measures and further investigation into how to best define treatment success should halt; however, without a generally accepted process of evaluating the effectiveness of PTSD treatments, our understanding of the utility of PTSD treatments and ability to best help veterans in need will remain limited.

Bibliography

Benson George Munyan III was born in Petoskey, Michigan on October 17th, 1986. He graduated at the age of 16 from Mohave Community College with his GED. Benson enlisted in the United States Army at the age of 18, and served combat tours in both the Middle East and the Horn of Africa, during which he developed a personal interest in PTSD. Currently a student at Utah State University, Benson is pursuing his Bachelors of Science in Psychology with a minor in English. He expects to graduate during the fall semester of 2012, after which he plans to continue to graduate school with the intent to specialize in combat related posttraumatic stress disorder. Afterwards, he hopes to return to the U.S Army as a commissioned health professional.

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*Indicates studies that were included in this review.

Study	Treatment	Dropouts n (%)	Refusals (n. Pre-R)	Refusals (n. Post-R)	Definition of Response	Primary Measure	Nonresponders (Post)	Nonresponders (Followup)	Time to Followup (Months)	Analysis
Beidel <i>et al</i> (2011)	Trauma Maintenance Therapy	4 (22)	9	--	Increased Social and emotional functioning as measured by CAPS.	CAPS	57%	--	--	Completer
	Exposure Therapy	1 (6)			(See Note 2) 10 Point decrease in CAPS	CAPS	6%			
Schnuerr <i>et al</i> (2003)	Trauma Focused Group Therapy	62 (34)	21	--			63%	57%	12	ITT
	Present-Centered Comparison Treatment	45 (25)					61%	55%		
Schnuerr <i>et al</i> (2007)	Prolonged Exposure	53 (38)	5	6	≥10 Point decrease in CAPS	CAPS	30%	32%	6	ITT
	Present-Centered Therapy	19 (21)		11			42%	32%		
Keane <i>et al</i> (1989)	Implosive/Flooding	0 (0)	--	--	See Note 1.	See note 1.	36%	--	6	Completer
Monson <i>et al</i> (2006)	Cognitive Processing Therapy	6 (20)	16	10	Reliable change according to CAPS.	CAPS	60%	70%	1	ITT
Cooper & Clum (1989)	Imaginal Flooding	6 (37)	4	6	Decrease on SUDS and BAT measures.	BAT/SUDS	0%	0%	3	Completer
Ford <i>et al</i> (1997)	Time-Limited Psychotherapy	0 (0)	--	--	No longer Clinical by 2 of 4 primary measures	IES-I & IES-A	57%	40%	6	--
Litz <i>et al</i> (2007)	Self-Management CBT	7 (16)	31	26	Reduction in PTSD Symptom Scale	PTSD Symptom Scale	57%	56%	3.6	ITT
McLay <i>et al</i> (2011)	VR-Graded Exposure Therapy	0 (0)	--	--	>30% CAPS reduction	CAPS	30%	--	--	Completer
Devilly, Spence, & Rapee (1998)	EMDR	6 (32)	0	0	Reliable change analysis	M-PTSD	33%	30%	6	Completer
	REDDR	4 (25)					58%	30%		

Note: BAT, Behavioral Avoidance Test; CAPS, Clinician-Administered PTSD Scale; CBT, Cognitive Behavioral Therapy; ITT, Intent-to-Treat; IES-A, Impact of Event Scale (Avoidance);

IES-I, Impact of Event Scale (Intrusive); M-PTSD, Mississippi Scale for Combat-Related PTSD; QLQ, Quality of Life Questionnaire; QOLI, Quality of Life Inventory; SUDS, Subjective Unity of Distress Scale

Notes:

1. Keane *et al* 1989 responded to ≥ 3 outcome measures, including the BDI, Zung Depression Inventory, Spielberger State and Trait Anxiety State and Trait Anxiety Inventories, and the Fear Schedule Survey (FFS).

2. Beidel *et al* rated participants independently by first and second authors. Responders were those rates as "1", very much improved, or "2", much improved.

Table 1. Overview of PTSD treatment outcomes.