

Antioch University AURA - Antioch University Repository and Archive

Dissertations & Theses

Student & Alumni Scholarship, including
Dissertations & Theses


2015

The Utilization of Evidence-Based Treatments in Trauma Treatment of Active Military Personnel and Their Families

Matt Brickell

Antioch University - Seattle

Follow this and additional works at: <http://aura.antioch.edu/etds>

 Part of the [Clinical Psychology Commons](#), and the [Psychoanalysis and Psychotherapy Commons](#)

Recommended Citation

Brickell, Matt, "The Utilization of Evidence-Based Treatments in Trauma Treatment of Active Military Personnel and Their Families" (2015). *Dissertations & Theses*. 231.
<http://aura.antioch.edu/etds/231>

This Dissertation is brought to you for free and open access by the Student & Alumni Scholarship, including Dissertations & Theses at AURA - Antioch University Repository and Archive. It has been accepted for inclusion in Dissertations & Theses by an authorized administrator of AURA - Antioch University Repository and Archive. For more information, please contact dpenrose@antioch.edu, wmcgrath@antioch.edu.

The Utilization of Evidence-Based Treatments in Trauma Treatment of Active
Military Personnel and Their Families

A Dissertation

Presented to the Faculty of
Antioch University Seattle
Seattle, WA

In Partial Fulfillment
of the Requirements of the Degree
Doctor of Psychology

By

Matt Brickell

July 2014

The Utilization of Evidence-Based Treatments in Trauma Treatment of Active
Military Personnel and Their Families

This dissertation, by Matt Brickell, has been approved by the Committee Members signed below who recommend that it be accepted by the faculty of the Antioch University Seattle at Seattle, WA in partial fulfillment of requirements for the degree of

DOCTOR OF PSYCHOLOGY

Dissertation Committee:

Mark Russell, Ph.D., ABPP
Chairperson

Jude Bergkamp, Psy.D.

Howard Lipke, Ph.D.

Date

© Copyright by Matt Brickell, 2014

All Rights Reserved

Abstract

The Utilization of Evidence-Based Treatments in Trauma Treatment of Active Military Personnel and Their Families

Matt Brickell

Antioch University Seattle

Seattle, WA

This study reviewed the literature regarding the effectiveness of evidence-based treatments in addressing traumatic stress injuries such as post-traumatic stress disorder in active military personnel and their families. Top tier treatments recommended by the Department of Defense and Department of Veteran Affairs Clinical Practice Guidelines for the treatment of traumatic stress disorders are discussed, and the literature is critically examined with a focus on exploring the reported evidence of effectiveness. In addition, this study contributed unpublished archival clinical outcome data from evidence-based treatment of active military personnel and their families in real-world clinical settings. The effectiveness of an evidence-based treatment is examined utilizing the most consistently utilized outcome measures in the reviewed literature. The electronic version of this dissertation is at OhioLink ETD Center, www.ohiolink.edu/etd

<u>Table of Contents</u>	<u>Page</u>
List of Tables	vii
Chapter I: Introduction.....	1
PTSD Treatment Guidelines	2
Determining Evidence-Based PTSD Psychotherapies.....	3
PTSD Psychotherapy Research With Military Populations.....	10
Overview of Military-Related PTSD Psychotherapy Research.....	14
Purpose of This Study.....	18
Chapter II: Current Literature on U.S. Military Related PTSD Treatment Research.....	19
PTSD Treatment Efficacy Studies With U.S. Military Populations Since 2010 ...	20
Summary of the Efficacy Research With U.S. Military Populations Since 2010..	23
PTSD Treatment Effectiveness Studies With U.S. Military Populations Since	
2004.....	25
Summary of the Effectiveness Research With U.S. Military Populations Since	
2004.....	39
Requests for Effectiveness Research	40
Military Population Access to EBTs for PTSD	41
Controversies Regarding EMDR Research	41
Potential Benefits of EMDR Research With U.S. Active Military Personnel.....	43
Allegiance Effects in Research	45
Chapter III: Pilot Study on Potential Effectiveness of Implementing a PTSD-EBT	46
Rationale for This Pilot Study.....	46
Methods.....	46
Measurements	51

Chapter IV: Results.....	54
Chapter V: Discussion	60
References.....	71
Appendix A: Copyright Permission Letter	78

<u>List of Tables</u>	<u>Page</u>
1. PTSD Psychotherapy Research Populations From the IOM (2012).....	15
2. PTSD Psychotherapy Research Populations From Foa et al. (2000).....	16
3. PTSD Psychotherapy Research Populations From Van Etten & Taylor (1998)	17
4. PTSD Psychotherapy Research Populations From Albright and Thyer (2010)	17
5. EBT Efficacy Research With U.S. Military Populations Since 2010.....	24
6. EBT Effectiveness Research With U.S. Military Populations Since 2004.....	36
7. Requests for Effectiveness Research Contrasted With Reviews of Available Effectiveness Research	40
8. Pilot Study Archival Data Set A	48
9. Pilot Study Archival Data Set B	48
10. Pilot Study Combined Patient Demographic Table	50
11. Pilot Study Pre- and Post-Outcome Measures Table.....	53
12. Pilot Study SUDS and VOC Results Table	57
13. Pilot Study Active Military BDI-II, BAI, and PCL-M Results Table	59
14. Proposed Effectiveness Research Study Standards	69

Chapter I: Introduction

The Institute of Medicine (IOM, 2012) recently estimated that 2.6 million United States (U.S.) military personnel served in Iraq or Afghanistan since 2001. Among those 2.6 million individuals, the IOM found posttraumatic stress disorder (PTSD) prevalence rates to be between 13% and 20%; this percent represents a total of between 338,000 and 520,000 active duty personnel with PTSD. The PTSD prevalence rates for Vietnam veterans are similar to those of veterans from the Iraq and Afghanistan wars (Kulka et al., 1990). Specifically, the National Vietnam Veterans Readjustment Study (NVVRS) (Kulka et al., 1990) found that 15.2% of Vietnam veterans had PTSD at the time of the study and that 30.9% had PTSD at some point during their lifetime. Currently, PTSD is the most prevalent psychiatric disorder for which veterans seek disability benefits and the third most commonly compensated disorder (U.S. Department of Veterans Affairs, 2012). Furthermore, a Department of Defense (DOD) and Department of Veterans' Affairs (VA) conference on veteran suicide prevention reported there are approximately 18 U.S. veteran suicides each day. Additionally, the suicide rates in the U.S. Army nearly doubled from 2004 to 2008 (Sayer, Carlson, & Frazier, 2014). Most service members who committed suicide were not receiving any mental health treatment at the time of their death (Shinsheki, 2010). According to the IOM (2012), "effective treatments for PTSD may reduce the risk for suicide and psychiatric hospitalization in those who have PTSD" (p. 317).

Bradley, Greene, Russ, Dutra, and Westen (2005) conducted a meta-analysis of psychotherapies for PTSD, reviewing randomized controlled trial (RCT) studies

published between 1980 and 2003. The psychotherapies studied included: Exposure Therapy (ET), Cognitive Behavioral Therapy (CBT), ET plus CBT, and Eye Movement Desensitization and Reprocessing (EMDR). Of the 26 studies reviewed, 40% failed to report data regarding the completion rates of participants. Among studies including the completion rate, the results differed according to treatment modality: ET studies averaged a 75.9% completion rate; CBT averaged an 82.8% completion rate, ET plus CBT averaged a 67% completion rate, and EMDR averaged an 88.7% completion rate. Bradley et al. found that across the studies reviewed, the completion rate was negatively associated with at least one outcome measure; therefore, it is possible that the patients who did not get better dropped out of the RCT studies, thereby influencing reported improvement rates. As a result, it was recommended that future research on PTSD psychotherapies be conducted without controls in real-world clinical settings (Bradley et al., 2005).

PTSD Treatment Guidelines

The Department of Veterans' Affairs and the Department of Defense (VA & DOD) published the first clinical guidelines for the treatment of PTSD in 2004. The VA and DOD guidelines noted that PTSD was the most common mental disorder resulting from combat, and the stated goal of the guidelines was, "to aid field personnel and health care workers in identifying, assessing, and/or treating military men and women and veterans who have survived traumatic events" (p. i). Focusing on the prevention, assessment, and treatment of a range of traumatic disorders, the VA and DOD guidelines strongly recommend four specific psychotherapy treatments for PTSD: Cognitive Therapy (CT), ET, Stress Inoculation Training

(SIT), and EMDR. Shortly thereafter, the American Psychiatric Association (American Psychiatric Association, 2004) published their own clinical treatment guidelines for PTSD, essentially highlighting the same psychotherapeutic interventions as the VA and DOD (2004) guidelines. Drawing similar conclusions to those contained in the VA and DOD guidelines, the American Psychiatric Association (2004) guidelines recommended the same four psychotherapy treatments.

The VA and DOD (2010) revised their guidelines six years later, and shifted away from recommending specific treatments. Rather, the VA and DOD (2010) guidelines discussed evidence-based trauma-focused treatments, and the common elements of those treatments. The VA and DOD (2010) guidelines noted that trauma-focused treatments use a broad range of interventions based on a number of theories and models, including: learning theory, cognitive theory, emotional processing theory, fear-conditioning models, and others (p. 115). The most common elements of those treatments include exposure and/or cognitive restructuring combined with anxiety management and stress reduction skills. The recommendations of the VA and DOD (2010) guidelines are based on RCTs and meta-analyses of trauma-focused treatments; however, despite the target populations of the VA and DOD, many of these RCTs are not conducted with veterans or active military populations.

Determining Evidence-Based PTSD Psychotherapies

While many, including the American Psychological Association, have advocated for the use of both efficacy and effectiveness studies as methods of

validating treatments (American Psychological Association, 1995; Barlow, 1996; Hoagwood, Hibbs, Brent, & Jensen, 1995), there is still a lack of consistent criteria in the literature for the determination of a psychotherapy treatment as an evidence-based treatment (Kazdin, 2008, 2011). The American Psychological Association Task Force (1995) offered a template for creating guidelines to evaluate psychotherapy along two conditions: internal validity (efficacy) and clinical utility (effectiveness).

Efficacy standards. The American Psychological Association's (1995) clinical research guidelines recommended evaluating efficacy through rigorous scientific research designed to assess the impact of psychological interventions, primarily in a controlled clinical research setting. According to the template, the efficacy of a psychological intervention was demonstrated through RCTs comparing that intervention to other treatment conditions (alternative therapy, non-specific therapy, or no therapy). This type of evidence informed the basis of most clinical practice guidelines (Barlow, 1996).

Members of the American Psychological Association Task Force, Chambless and Hollon (1998), noted the American Psychological Association (1995) recommended that guidelines for treatment interventions be evaluated with respect to how closely they adhere to empirical evidence. Chambless and Hollon attempted to clarify this definition by broadening criteria slightly; according to the Chambless and Hollon criteria, as well as the American Psychological Association (1995) criteria, the efficacy of a treatment is best demonstrated by RCTs and independent replication. Other proposed criteria regarding the methodological evaluation of psychotherapy research studies exist throughout the literature. Foa and Meadows

(1997) suggested a Gold Standard (GS) of seven criteria, specifically for evaluating the efficacy of EMDR studies: (a) clearly defined target symptoms; (b) reliable and valid measures; (c) use of blind evaluators; (d) information about an assessor's training; (e) manualized, replicable, specific treatment; (f) unbiased treatment; and (g) treatment adherence. Although Foa and Meadows originally targeted EMDR studies specifically, their criteria are applicable to the evaluation of most evidence-based treatment (EBT) research studies.

Further revising the GS established by Foa and Meadows (1997), Maxfield and Hyer (2002) created the Revised Gold Standard (RGS) through the introduction of three additional guidelines for methodological evaluation of EMDR research: a) no confounded conditions; (b) use of multi-modal measures; and (c) length of treatment for participants. Maxfield and Hyer noted that confounded treatment conditions increase the likelihood of Type II error and decrease construct validity. In addition, the accuracy of evaluations is assumed to increase through multimodal measures compared to evaluation through self-report alone. The length of treatment was modified to introduce a satisfactory course of treatment out of the concern that multiple-trauma clients typically required more extensive treatment. The resulting guidelines included 10 total criteria; again, although these guidelines were established for the evaluation of EMDR research, they are applicable to most EBT research studies.

Building upon standards identified by Maxfield and Hyer (2002) as well as Foa and Meadows (1997), Hertlein and Ricci (2004) developed a Platinum Standard (PS) for evaluating the methodological characteristics of EMDR research studies. Hertlein and Ricci introduced three new criterions, resulting in 13 total criteria for the guidelines. The

additions included: a criterion accounting for therapist training level; evidence of a control group or comparison group; and the inclusion of effect size in accordance with American Psychological Association recommendations. While the standards developed by Hertlein and Ricci were targeted towards EMDR research studies, they are applicable to most of the research studies conducted on the EBTs endorsed by the VA and DOD (2010) treatment guidelines.

In a meta-analysis of PTSD psychotherapies, Bradley et al. (2005) suggested that the prevalent utilization of waitlist and inert control conditions was highly problematic, since these conditions fail to address the common factors that threaten internal validity. For example, the two most common control conditions besides wait list were relaxation therapy and supportive psychotherapy; neither of these was intended or expected to succeed (p. 226). Furthermore, these conditions do not control for the confounding variables of clinician commitment and allegiance effects. As a result, Bradley et al. recommended that the best method for convincing experienced clinicians to make greater use of therapies researched by RCTs in laboratory settings would be to publish effectiveness research. Specifically, Bradley et al. (2005) called for research without “any form of controls other than genuine therapies with committed therapists, preferably treatments as practiced in the community, working with samples of patients resembling those seen in the community” (p. 226). Bradley et al.’s conclusion highlighted the gap in the literature between efficacy and effectiveness research, and echoed the American Psychological Association (1995) definition of efficacy as a measure of internal validity. For the purposes of this study, the *efficacy* of treatment will be determined

by the existence of research and RCTs that answer the question, “Does treatment work?” (Kazdin, 2008, p. 151).

Effectiveness standards. The American Psychological Association’s (1995) clinical research guidelines suggested assessing effectiveness by considering the clinical utility and feasibility of an intervention in the local setting where that intervention is delivered. In addition, the American Psychological Association recommended evaluating the generalizability of interventions with established efficacy. The American Psychological Association guidelines adopted the position that a combination of both efficacy and effectiveness studies is preferred for validating psychotherapy treatment. The template for constructing psychological intervention guidelines provided by the American Psychological Association emphasized the external validity of effectiveness studies, and highlighted their appropriateness for assessing feasibility of treatment, generalizability of treatment, as well as the costs and benefits of treatment (Barlow, 1996; Chambless & Hollon, 1998); however, despite this position, there is no consensus in the literature regarding the standards for effectiveness studies (Barlow, 1996; Seligman, 1995).

Barlow (1996) noted that effectiveness studies and clinical utility studies are often synonymous in the research. Similarly, De Maat, Dekker, Schoevers, and Jonghe (2007) stated that effectiveness research is often characterized as outcome research, rather than process research. Furthermore, De Maat et al. reported consensus in the field that empirical research, “can and must be ordered in a hierarchical system” (p. 59); the Centre for Evidence-Based Medicine Oxford (2009) published a widely accepted hierarchy:

- 1a. A systematic review of several RCTs with homogenous results

- 1b. One individual high-quality RCT
- 1c. One individual all-or-none study
- 2a. A systematic review of cohort studies or of patient-control studies with homogenous results
- 2b. One individual cohort study or one individual lower quality RCT
- 2c. Outcome research/Effectiveness Study
- 3a. A systematic review of case-control studies with homogenous results
- 3b. One individual case-control study
4. Case series or a lower quality cohort study
5. Expert's opinions or generally accepted therapeutic methods

While such a hierarchy is useful for developing a relative ordering of research, it does not discuss specific standards for effectiveness research. The differences between high- and low-quality RCTs are explored, but effectiveness studies are not standardized. The lack of a clear model for effectiveness studies represents a gap in the literature.

Kazdin (2008, 2011) noted frequently inconsistent criteria in the literature determining if a treatment should be considered evidence-based; however, Kazdin (2008, 2011) found one reoccurring element: the researched treatment must produce a measured outcome different from the outcome of a control, usually either a no-treatment control or treatment-as-usual condition. Kazdin (2011) reported this criterion as primarily established in the literature through RCTs, and the American Psychological Association (1995) task force specifically favored RCTs as a means of determining the evidence-base for treatment; however, most RCTs are not evaluated through systematic real-world application with clients in order to

determine whether or not they influence change (Kazdin, 2011). In order to further clarify the meaning and intent of effectiveness research, real-world, practical, or actual clinical settings are defined as locations that typically offer treatment, rather than clinics or sites dedicated to research (Kazdin, 2011).

In addition, Kazdin (2008) stated that while this criterion necessitates the demonstration of statistically significant differences between the groups after treatment, any measured statistical significance does not automatically translate into improved real world functioning of the patients. Similarly, Chambless and Hollon (1998) stated that some members of the American Psychological Association Task Force suggested efforts be made to take treatment utility into consideration. In order to take treatment utility into consideration, the American Psychological Association defined the term effectiveness as, “whether the treatment can be shown to work in actual clinical practice” (p. 14).

Effectiveness can be a superior marker of utility due to the frequent concern that efficacy research, such as studies using RCTs, generalize poorly to practical clinical settings (Chambless & Hollon, 1998; Kazdin, 2008; Seligman, 1995); the lacking generalizability of efficacy research is often due to participant screening that eliminates comorbid concerns frequently encountered in the real world (Chambless & Hollon, 1998; Kazdin, 2008, 2011; Seligman, 1995). A spectrum of research exists between the most rigorous efficacy research using RCTs and the most practical and effectiveness research. Chambless and Hollon (1998) concluded that effectiveness studies utilizing quasi-experimental and non-experimental designs could serve to address questions regarding the clinical utility of some treatments.

In support of effectiveness studies, Seligman (1995) argued that effectiveness studies of how patients respond in “the actual conditions of treatment in the field” generate “useful and credible” validation of psychotherapy (p. 966). Seligman noted that a primary benefit to effectiveness studies is that they are conducted in the field with the population actually seeking out the researched treatment. Seligman acknowledged that non-random assignment of participants might lead to biases in the research; however, such non-random assignment is necessary when researching the practice of psychotherapy as it is done in the field (Seligman, 1995). Seligman stated that if clients were randomly assigned to a particular course of treatment, this would impact the non-random decisions of the clients and therapists that result in the selection of a particular treatment modality. Seligman concluded that, “appropriately assigning individuals to the right treatment, the right drug, and the right sequence of techniques, along with individuals' choosing a therapist and a treatment they believe in, may be crucial to getting better” (p. 974); this intent is similar to the American Psychological Association (1995) definition of effectiveness as a measure of clinical utility. For the purposes of this study, the *effectiveness* of treatment will be determined through research without random assignment conducted in real-world settings that answers the question, “Do the findings extend to practice settings?” (Kazdin, 2008, p. 151).

PTSD Psychotherapy Research With Military Populations

The VA and DOD (2010) guidelines distinguished veterans from activity duty military personnel by noting that veterans are individuals who formerly served in the military but are now separated or discharged from the military. Speaking to the salient

differences between active military personnel and veterans, Tanielian et al. (2008) discussed how active duty military personnel (and their families) access and receive mental health services differently than military veterans. Specifically, veterans typically receive mental health care services as delivered through the VA system; in contrast, active duty military personnel, and their families, receive mental health treatment services through the Military Healthcare System (MHS) (Tanielian et al, 2008). Despite these noted differences, the majority of the analytic reviews of PTSD treatment done with military populations consist of research conducted with predominantly veterans and rarely with active duty military personnel (VA & DOD, 2010; IOM, 2012; Tanielian et al., 2008).

While the VA and DOD (2010) guidelines represent collaboration between the VA and the DOD, these two organizations serve unique populations in distinctive situations. The current U.S. military population is entirely volunteer-based, and is more demographically diverse than military was in the 1990-1991 Gulf War or in the Vietnam War (IOM, 2012; Tanielian et al., 2008); specifically, the military presently consists of more women and more ethnic or racial minorities than ever before (IOM, 2012). As stated above, an estimated 2.6 million U.S. service members have served in Iraq or Afghanistan since 2001 (IOM, 2012). The prevalence of PTSD among these 2.6 million individuals ranged from 13% to 20%, equating to approximately 338,000 to 520,000 service members with PTSD (IOM, 2012).

The IOM (2012) noted a number of differences between the PTSD programs within the DOD compared to those within the VA. The DOD provides services to active duty personnel and their families through TRICARE. TRICARE is a major component of

the MHS that delivers direct care through military treatment facilities (IOM, 2012). In addition, the TRICARE section of the MHS provides active military personnel access to a variety of mental health professionals: psychiatrists, clinical psychologists, certified psychiatric nurse specialists, clinical social workers, certified marriage and family therapists, mental health counselors, and pastoral counselors. In addition, in certain situations TRICARE provides purchased care for active military service members through civilian network and non-network healthcare professionals (IOM, 2012); furthermore, deployed active military service members may also receive treatment in combat theater, or be airlifted to the nearest large military hospital (Tanielian et al., 2008).

In addition to the DOD services provided to active military, the IOM (2012) reported that 438,091 veterans were treated through the VA medical system in 2010; however, while the VA offers specialized treatment programs that focus on PTSD, the majority of PTSD and PTSD-related services for veterans are delivered through general health, medical care, and primary care. In addition, the VA offers services through Vet Centers that are staffed by mental health professionals, including: clinical psychologists, social workers, and mental health counselors (Tanielian et al, 2008).

While all of the U.S. military medical services provide PTSD treatment programs, the IOM (2012) reported that no single source within the DOD or any other government organization maintains a complete list of these programs; furthermore, no organization is tracking the development of new or emerging programs, or consistently directing service members to whichever program would best meet their needs (IOM, 2012). Relatedly, Tanielian et al. (2008) stated that due to gaps within the organization the MHS and

TRICARE, it was not possible to “provide oversight to ensure *high quality of care*” (p. xxv). In contrast to the DOD services, Tanielian et al. noted that the VA offers a model of quality improvement in mental health care they recommend the DOD consider adopting.

Veteran and active military populations face different challenges regarding PTSD treatment. Tanielian et al. (2008) reported that the primary barrier preventing active duty personnel from pursuing mental health treatment was their concern that treatment would constrain future job assignments and career advancement within the military; such concerns do not necessarily generalize to the veteran population. In contrast, the VA’s challenges in providing veterans access to PTSD treatment appear to be due to difficulty with securing appointments, especially in facilities that have been designed primarily to meet the demands of an older veteran population.

Summary of PTSD psychotherapy research with military populations. Active military and veterans are demographically distinct populations that access services in different ways through separate systems (IOM, 2012; Tanielian et al., 2008). Active military may receive mental health services at the time of injury detection, including receiving services in combat theater while deployed (Tanielian et al., 2008); in contrast, veterans typically receive mental health care through outpatient services at VA Vet Centers across the United States (IOM, 2012). A primary focus of the DOD MHS is to prepare active service members for deployment, including potential combat scenarios; in contrast, the VA is a community-based organization servicing veterans that principally provides the following outpatient services prioritization hierarchy: service-connected disability, former prisoner of war status, receipt of a Purple Heart, disability not

connected to service, income, and specific criteria including service in a war (IOM, 2012). Due to the salient differences between the active military and veteran populations, the primary focus of this study is on active military personnel and their family members as opposed to retired veterans.

Overview of Military-Related PTSD Psychotherapy Research

Efficacy and effectiveness. Several literature reviews for treating PTSD among military populations have been conducted. The VA and DOD (2010) guidelines recommended ET, CT, SIT, and EMDR for the treatment of PTSD; however, the literature reviewed to determine these recommendations did not include effectiveness studies. Similarly, the IOM (2012) also reviewed the same EBTs (ET, CT, SIT, and EMDR), and the IOM stated that their recommendations were based solely on RCTs; as a result, effectiveness studies were again not taken into consideration. Tanielian et al. (2008) also reviewed ET, CT, SIT, and EMDR in their discussion of EBT treatments for PTSD. In contrast to the reviews by the VA and DOD (2010) and the IOM (2012), Tanielian primarily cited meta-analytic articles rather than specific RCT studies, making their inclusionary and exclusionary criteria for PTSD treatment studies unclear. Tanielian et al. (2008) most frequently cited Foa, Keane, and Friedman (2000) as a source of guidelines for the treatment of PTSD. Foa et al. focused explicitly on efficacy studies, and did not include any effectiveness research in their meta-analysis.

Research with veterans and active military personnel. The IOM (2012) divided their discussion of EBTs into various sections for the different psychotherapies. In their discussion of ET, the IOM made note of 24 different studies (see Table 1); however, only six of those studies included veterans and none included active military

personnel. The IOM reviewed seven RCTs for CT, none of which included veterans or active military personnel. For EMDR, the IOM reviewed four studies, again none of which included veterans or active military personnel. The IOM also reviewed two RCTs for SIT, neither of which included veterans or active military personnel. The IOM (2012) explicitly noted that the treatments they discussed were not necessarily researched specifically with military service members or veterans.

Table 1

PTSD Psychotherapy Research Populations From Studies Reviewed by IOM (2012)

	ET	CT	SIT	EMDR	ET	CT	SIT	EMDR
	Efficacy	Efficacy	Efficacy	Efficacy	Effectiveness	Effectiveness	Effectiveness	Effectiveness
	Studies	Studies	Studies	Studies	Studies	Studies	Studies	Studies
Non-military	18	7	2	4	-	-	-	-
Veterans	6	-	-	-	-	-	-	-
Active Military	-	-	-	-	-	-	-	-

Tanielian et al. (2008) relied on research compiled by Foa et al. (2000) to determine the quality of PTSD EBTs. Foa et al. reviewed a number of EBTs, including ET, CT, SIT, and EMDR. In discussing ET, Foa et al. reported on 12 RCTs, six of which involved Vietnam veterans, and none of which included active military service members. Foa et al. referenced two RCTs for CT but did not clarify if those studies were with veterans or active service members. Similarly, for SIT, Foa et al. referenced four studies, all of which were conducted with female sexual assault survivors. In discussing EMDR, Foa et al. noted seven RCTs in total; Foa et al. indicated that other research on EMDR

had been conducted with veterans, but did not specify the number of studies or if active military personnel were included.

Table 2

PTSD Psychotherapy Research Populations From Studies Reviewed by Foa et al. (2000)

	ET Efficacy Studies	CT Efficacy Studies	SIT Efficacy Studies	EMDR Efficacy Studies	ET Effectiveness Studies	CT Effectiveness Studies	SIT Effectiveness Studies	EMDR Effectiveness Studies
Non- military	6	-	4	7	-	-	-	-
Veterans	6	2	-	-	-	-	-	-
Active Military	-	-	-	-	-	-	-	-

In another meta-analysis on treatments for PTSD, Van Etten and Taylor (1998) examined studies on ET, CT, SIT, and EMDR. Of the 61 studies incorporated in this review, 15 included veterans; however, none of the research involved active military service members. Relatedly, Albright and Thyer (2010) conducted a meta-analysis specifically on the utilization of EMDR to treat PTSD in combat veterans. Of the nine studies reviewed, none contained active military personnel as participants. Furthermore, seven of the nine studies reviewed were specifically conducted with Vietnam veterans; the other two studies discussed were unclear in which war(s) their veterans participated.

Table 3

PTSD Psychotherapy Research Populations From Studies Reviewed by Van Etten and Taylor (1998)

	ET, CT, SIT, and EMDR Efficacy	ET, CT, SIT, and EMDR Effectiveness
Non-military	46	-
Veterans	15	-
Active Military	-	-

Table 4

PTSD Psychotherapy Research Populations From Studies Reviewed by Albright and Thyer (2010)

	EMDR Efficacy	EMDR Effectiveness
Non-military	2	-
Veterans	7	-
Active Military	-	-

Summary. The IOM (2012) recommended that the VA and DOD gather further data regarding the effectiveness of all PTSD interventions, including ET, CT, SIT, and EMDR. While the IOM noted the benefits of RCTs, their conclusion specifically noted that pilot studies and other measures could be beneficial. The IOM (2012) and Tanielian et al. (2008) both suggested that early intervention and treatment are likely to yield long-term benefits to the individual service members as well as society at large. Furthermore, in order to address the current gaps in the literature, Tanielian et al. recommended additional and sustained research on the effectiveness of psychotherapy interventions on military personnel with PTSD. Following the suggestions of the IOM (2012) and Tanielian et al. (2008), this study will address a gap in the literature regarding

the effectiveness of EBT interventions employed to treat PTSD in active military personnel.

Purpose of This Study

The literature will be examined regarding both the efficacy and effectiveness of evidence-based PTSD psychotherapy treatment conducted with active military personnel and their families; a greater emphasis will be placed on effectiveness due to this study's focus on external validity and generalizability. Effectiveness research will be considered as studies that employed research methods that neither randomly assigned participants nor excluded participants due to concern for comorbid complications. Using existing meta-analytics as a basis (VA & DOD, 2010; IOM, 2012; Tanielian et al., 2008), this study will review and discuss the relevant literature available since the publication of the VA and DOD (2010) guidelines.

After reviewing the current state of the literature on PTSD psychotherapy effectiveness studies with active military populations, the recommendations of the IOM (2012) and Tanielian et al. (2008) will be followed. The current pilot study will report on the effectiveness of implementing a PTSD EBT, specifically EMDR, in the treatment of PTSD in active military personnel and their families in a military community setting. A partial model for effectiveness research will be provided, thereby addressing an established gap in the literature. Furthermore, this study will attend to some of the noted limitations of effectiveness research by including a larger population than usual as well as a larger number of more commonly utilized outcome treatment measures.

Chapter II: Current Literature on U.S. Military Related PTSD Treatment Research

This literature review examines the current efficacy literature conducted on PTSD treatment with U.S. active military and veteran populations published since 2010 regarding the EBTs recommended by the VA and DOD (2010) guidelines: Cognitive Therapy (CT), Exposure Therapy (ET), Stress Inoculation Training (SIT), and Eye Movement Desensitization and Reprocessing (EMDR). Efficacy research will be considered to be RCT studies designed to assess if treatment works in a controlled setting. Given that the VA and DOD (2010) guidelines and existing meta-analyses (IOM, 2012; Tanielian et al., 2008) did not include effectiveness studies in their literature reviews or discussions, the topic will be explored and expand upon. Effectiveness research on the VA and DOD recommended EBTs of PTSD, conducted with active military and veterans, will be the focus.

Due to the gap in the literature regarding effectiveness research, especially with active military populations, the current literature review will examine effectiveness studies with military populations published since the release of the VA and DOD (2004) guidelines. Effectiveness research will be considered to be studies that employed research methods that neither randomly assigned participants nor excluded participants due to concern for comorbid complications. In addition, in order to best incorporate literature on this topic, multiple-case studies conducted utilizing the relevant therapies with the target populations will be included; however, as a primary focus of effectiveness research is external validity and generalizability, individual case studies will not be reviewed. A summary of military-related effectiveness research is provided and the noteworthy exclusion of effectiveness

studies from the analysis of the VA and DOD (2010) guidelines, as well as the IOM (2012) and Tanielian et al. (2008) meta-analyses, is highlighted; in addition, tables synthesizing the reviewed literature are provided at the end of both the efficacy and effectiveness sections.

Although the VA and DOD (2010) guidelines reported concerns regarding the generalizability of RCTs, the studies included were limited to efficacy research. The inclusionary criteria for the studies included in the VA and DOD guidelines were:

Published in United States, United Kingdom, Europe, Australia, Japan, New Zealand; Full articles only published in English; Study populations: age limited to adults 18 years of age or older; all races, ethnicities, and cultural groups; Relevant outcomes able to be abstracted from the data presented in the articles; Sample sizes appropriate for the study question addressed in the paper. RCTs were included if they were initiated with 30 or more participants (p. 200).

Inclusionary and exclusionary criteria. In addition to the above criteria regarding the definition of efficacy research and effectiveness research, articles were included if the following standards were met: (1) participants were diagnosed with a traumatic stress injury; (2) two or more participants were included; (3) treatment outcome was presented in terms of self-report or observer-rated measures; (4) participants were from a United States of America military population (i.e., active military or veteran); (5) studies were researching one of the VA and DOD (2010) recommended EBTs for PTSD: ET, CT, SIT, and EMDR.

PTSD Treatment Efficacy Studies With U.S. Military Populations Since 2010

Cognitive therapies. Macdonald, Monson, Doron-Lamarca, Resick, and Palfai (2011) conducted an RCT utilizing cognitive processing therapy (CPT) with 60 veterans diagnosed with PTSD due to military trauma. The study did not include any active

military participants. The veterans involved in the study primarily served in Vietnam, although Macdonald et al. noted 17 of their participants served in “other” conflicts (p. 270). Exclusionary criteria for the study by Macdonald et al. included: current substance abuse or dependence, current suicidal ideation (SI) or homicidal ideation (HI), current uncontrolled psychotic or bipolar disorder, significant cognitive impairment, and unstable psychopharmacological regimen (researchers required two months of stability on medication). There was a 16.6% overall dropout rate from therapy; however the average number of sessions completed was not reported. Using the PTSD Checklist for Military (PCL-M) and the Clinician Administered PTSD Scale (CAPS) as outcome measures, Macdonald et al. found a significant improvement in participants who received CPT compared to their waitlist condition.

Similarly, Surís, Link-Malcolm, Chard, Ahn, and North (2013) conducted an RCT using CPT as the treatment for PTSD resulting from military-related sexual trauma among 86 (73 female, 12 male) veterans of unspecified eras; no active military participants were involved. The exclusionary criteria noted by Surís et al. included: current psychotic symptoms, current substance dependence (within the last three months), current unstable bipolar disorder, current SI or HI, severe cognitive impairment, and current involvement in a violent relationship. Surís et al. assessed symptomology with the PTSD Checklist (PCL), the CAPS, and the Quick Inventory of Depressive Symptomatology (QIDS). Participants completed an average of ten sessions. While 28% of participants dropped out of the study (35% from the CPT condition and 18% from the control condition), Surís et al. found a significant difference in the CPT group, supporting the efficacy of the treatment.

Exposure therapies. Tuerk, Yoder, Ruggiero, Gros, and Acierno (2010) conducted a pilot study wherein 12 Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) veterans previously diagnosed with combat-related PTSD were treated using prolonged exposure (PE) therapy through telehealth technology. No formal inclusionary or exclusionary criteria were reported, and no active military personnel were involved in the study. Tuerk et al. administered the PCL-M and the Beck Depression Inventory-II (BDI-II) both pre-treatment and post-treatment as outcome measurements. Of the 12 participants receiving telehealth treatment, three dropped out before completing five sessions; the remaining nine participants completed an average of 10 sessions that were 90-minutes long. As a result, the total average number of sessions completed was seven, and the dropout rate for the entire study was 25%. For treatment completers, Tuerk et al. reported a clinically and statistically significant decrease in PTSD symptomology according to the PCL-M self-report measure. In addition, there was also a clinical and statistical decrease in BDI-II scores. In comparing telehealth PE to an in-person PE sample of 35 participants, Tuerk et al. concluded that there was a slightly higher dropout rate for telehealth participants.

More recently, Price, Gros, Strachan, Ruggiero, and Acierno (2013) conducted a RCT researching the treatment of 111 OEF and OIF veterans with ET. None of the participants were active military personnel, and no formal inclusionary or exclusionary criteria were reported. Of the 111 veteran participants, 101 were male, 56 were Caucasian, and 49 were African American. In addition, 72 of the participants were diagnosed with PTSD, while 39 subjects were sub-threshold for PTSD according to the CAPS. Outcome measures included the BDI-II, the CAPS, the PCL-M, the Combat

Experiences Scale (CES), and the Deployment Risk and Resiliency Inventory (DRRI). The participants received eight weeks of ET, although the average number of sessions completed and the treatment dropout rate were not reported. Price et al. noted that BDI-II and PCL-M scores had decreased throughout treatment; however, increased combat exposure was related to a lower rate of change in PTSD symptoms, but not in depression symptoms.

Summary of the Efficacy Research With U.S. Military Populations Since 2010

As seen in Table 5, since 2010 only four efficacy studies were found that researched the application of the four top tier psychotherapy treatments, with military populations, as recommended by VA and DOD (2010) guidelines. Of these four studies, all focused on veteran participants. As a result, none were conducted with active military populations. Additionally, two of these studies researched ET (Price et al., 2013; Tuerk et al., 2010), and two researched CT (Macdonald et al., 2011; Surís et al., 2013); no studies researched either SIT or EMDR.

Table 5

EBT Efficacy Research With U.S. Military Populations Since 2010

Study and Treatment Modality	Trauma Type and Diagnoses	Population	Number of Subjects	Psychometric Measures	Average Number of Sessions Completed	Completion Rate	Improvement Rate
Tuerk et al. (2010) Prolonged Exposure Therapy	Combat-related PTSD	Veterans (OIF and OEF)	n = 65	PCL-M, BDI-II	7	75%	-
Macdonald et al. (2011) Cognitive Processing Therapy	PTSD due to military trauma	Veterans (Vietnam and Other)	n = 60	CAPS, PCL-M	-	83.4%	-
Suris et al. (2013) Cognitive Processing Therapy	PTSD resulting from military-related sexual trauma	Veterans (Unspecified)	n = 86	CAPS, PCL, QIDS	10.1	72%	-
Price et al. (2013) Exposure Therapy	PTSD and PTSD symptoms.	Veterans (OIF and OEF)	n = 111	BDI-II, CAPS, PCL-M, CES, DRR1	-	-	-

PTSD Treatment Effectiveness Studies With U.S. Military Populations Since 2004

Cognitive therapies. Zappert and Westrup (2008) studied the effectiveness of CPT with 18 female veterans, with an average age of 44.6 years old, in a residential treatment facility for trauma recovery. No formal inclusionary or exclusionary criteria were reported, and none of the participants were active military service members. No participants dropped out, and participants completed an average of 12 sessions. Modifying the standard CPT protocol, Zappert and Westrup conducted treatment in a group setting to accommodate the practical limitations of the treatment site. Using the PCL to assess outcomes, Zappert and Westrup found that 15 of the 18 participants reported a clinically significant decrease in PTSD symptomology.

In an effort to explore different responses to treatment, Chard, Schumm, Owens, and Cottingham (2010) compared a sample of outpatient veterans from OEF and OIF to a sample of veterans from Vietnam; no active military participants were included. Comparisons were made before and after treatment of combat-related PTSD using CPT. No formal inclusionary or exclusionary criteria were noted. Chard et al. employed the BDI-II, the PCL, and CAPS as pre- and post-measures. The OEF and OIF study participants consisted of 101 veterans, with an average age of 30.9, who received treatment between 2005 and 2008 at a Veterans Administration Medical Center PTSD Clinic or an OEF/OIF clinic. The average number of sessions completed by OEF/OIF veterans was 10.67, and for Vietnam veterans it was 13.24. Vietnam veterans had a dropout rate of 26%, while OEF/OIF veterans had a dropout rate of 35%. All of the 101 veteran participants met full criteria for PTSD pre-treatment. While Chard et al. primarily focused on the similarities and differences between Vietnam veterans and OEF/OIF

veterans, the study reported that 69% of the OET and OIF veterans no longer met criteria for PTSD after completion of treatment; in contrast, 40% of the Vietnam veterans no longer met PTSD criteria after receiving CPT.

In another effectiveness study on veterans, Alvarez et al. (2011) employed a retrospective method when researching the effectiveness of group CPT compared to trauma-focused group treatment as usual (TAU), in the context of a Veterans Health Administration (VHA) PTSD residential rehabilitation program. Participants included 197 male veterans, with an average age of 52 years, who exhibited symptoms of PTSD. No participants were active military personnel. Furthermore, the average number of sessions completed was not reported; nor was the dropout rate for participants. Clinical outcomes were assessed using a variety of measures, including: the PCL, the Beck Depression Inventory (BDI), the World Health Organization Quality of Life-BREF (WHOQOL-BREF), the Brief COPE, and the Symptom Checklist (SCL-6). Alvarez et al. found that the 14-session cognitive processing therapy group evidenced “demonstrated significantly more improvement” at discharge than the 15-session TAU group (p. 596).

Dickstein, Walter, Schumm, and Chard (2013) conducted effectiveness research on CPT with two groups of veterans: one was diagnosed PTSD, and one was found to have sub-threshold PTSD. Dickstein et al. reported that their study was, to the best of their knowledge, the first effectiveness study of a trauma-focused EBT with a sub-threshold PTSD population. Their 534 participants were veterans of unspecified wars who had completed at least one session of individual, outpatient CPT at a VA outpatient specialty clinic. Participants were 48 years old on average, and 96% were male; no participants were active military service members. The mean number of CPT sessions

completed by participants was 8.44; however, the dropout rate of participants was not reported. Of the 534 participants, 483 (90.4%) met full criteria for PTSD, while the remaining 51 (9.6%) met criteria for sub-threshold PTSD. Dickstein et al. employed the CAPS, PCL, and BDI-II as outcome measures for tracking treatment progress; the results found a significant decrease in PTSD symptoms in both the PTSD participant group and the sub-threshold PTSD participant group.

Furthermore, Castillo, Lacefield, Baca, Blankenship, and Qualls (2014) studied group cognitive therapy employed in the treatment of female veterans with PTSD. The participants were 271 female veterans of an unspecified war with an average age of 45. The participants did not include any active military personnel. The data for this effectiveness study was collected from 51 PTSD treatment groups held at a southwest VA clinic between 1995 and 2013. The outcome measures utilized with the group cognitive treatment included the CAPS and the PCL. Most of the participants (82%) experienced more than one trauma, and sexual trauma was the most frequently reported trauma (53%). In addition, 63% of the participants were diagnosed with a comorbid psychiatric disorder, and no exclusionary criteria for the study were noted. Castillo et al. stated that 36.6% of participants dropped out of treatment, although the average number of treatment sessions completed was not noted. Castillo et al. reported that 20% of participants no longer met criteria for PTSD after treatment, and that one third of participants experienced a decrease of at least 10 points on the post-treatment PCL outcome measure.

Kaysen et al. (2014) conducted an effectiveness study comparing the CPT treatment of two groups of veterans: those with comorbid PTSD and alcohol use

disorders, and those only diagnosed with PTSD. The 536 participants were 90% male, and reported an average age of 44. The largest group of veterans was from OEF and OIF (39.7%), but there were also veterans from Vietnam (32.7%), post-Vietnam (11.8%), and the Persian Gulf (14.7%); in addition, three veterans (1.1%) were pre-Vietnam. None of the participants were active military. Half of the total sample, 264 (49.3%) participants, endorsed a current or past alcohol use disorder diagnosis, making the group sizes nearly even. Participants completed an average of nine sessions, although the dropout rate for participants was not reported. Kaysen et al. utilized the CAPS, PCL, and BDI-II as outcome measures for CPT treatment. Results indicated that veterans with and without alcohol use disorders attended treatment equally, and that treatment was effective with both groups. No negative interaction was found between alcohol use disorders and treatment outcome.

Exposure therapies. Rauch et al. (2009) conducted research on PET treatment with 10 veterans diagnosed with PTSD in a Veterans Health PTSD clinic. Eight of the participants were male, two were female, and the average age was 39 years old. No formal inclusionary or exclusionary criteria were utilized, and no participants in the study were active military service members. The average number of sessions completed was 12.7, and no participants dropped out of the study. Treatment outcomes were measured through the following pre- and post-outcome assessments: Posttraumatic Diagnostic Scale (PDS), BDI-II, Post-traumatic Cognitions Inventory (PCI), Dissociative Experiences Scale (DES), Spielberger Trait Anger Inventory (STI), CAPS, and Mini International Neuropsychiatric Interview (MINI). Rauch et al. found significant reduction in symptoms across all of the outcome measures utilized. In addition, the effect sizes

were consistent with results seen in RCTs conducted with both non-veteran and veteran populations.

McLay, McBrien, Wiederhold, and Wiederhold (2010) discussed a parallel case series of ten active duty service members receiving ET treatment, with and without virtual reality (VR), for combat PTSD. This case series documented the first known usage of VR to treat PTSD in a combat theater, and no participants dropped out. Four of the participants, with an average age of 24.5 years old, received typical ET treatment, and completed a mean of nine sessions; six of the participants, with an average age of 26.5 years old, received VR ET treatment, and completed a mean of 6.5 sessions. Pre- and post-treatment outcomes for both groups were measured utilizing the PCL-M. McLay et al. found that both groups demonstrated significant improvement after treatment. Five of the six ET with VR group participants no longer met criteria for PTSD; in addition, all four of the ET group participants no longer met criteria for PTSD. As a result, it was concluded that both ET and ET with VR were safe and effective treatments for combat-related PTSD in a combat theater.

Cigrang et al. (2011) reported findings from a pilot study examining the effectiveness and practicality of ET treatment in a real-world setting. The treatment participants were 15 active duty OIF and OEF veterans, with an average age of 39, all previously diagnosed with PTSD. Cigrang et al. noted exclusion criteria that, “mirrored patient characteristics that were likely to result in a referral to specialty mental health in routine clinical care” (p. 107). These criteria included: serious suicide risk, current psychotic disorder, current alcohol dependence, significant dissociative disorder, and severe brain injury. Cigrang et al. utilized the PCL-M as a pre- and post-treatment

outcome measurement, as well as the Behavioral Health Measure (BHM) and the PTSD Symptom Scale, Interview Version (PSS-I). Five participants dropped out after one or two sessions, while the remaining 10 participants completed an average of four and one-half 30-minute appointments; the average number of sessions attended was 4.5. Cigrang et al. stated that PTSD symptom severity and depression both significantly improved after treatment, and 50% of the participants were found to no longer met criteria for PTSD during the one-month post-treatment follow up. Cigrang et al. concluded that PE was effective in this real-world setting, and that brief therapy resulted in a substantial decrease in deployment-related PTSD.

Similarly, Reger et al. (2011) noted the lack of literature regarding the effectiveness of ET with active military populations and conducted a study on the effectiveness of Virtual Reality (VR) Exposure Therapy. Reger et al. used the PCL-M to study the treatment outcomes of VR ET with 24 active-duty soldiers over an average of 7.4 sessions; the dropout rate of participants was not reported. No formal inclusionary or exclusionary criteria were used. Reger et al. found that 45% of participants no longer screened positive for probable PTSD, and 62% of participants had “reliably improved” on the PCL-M by decreasing their score by at least 11 points (p. 95).

Strachan, Gros, Ruggiero, Lejuez, and Acierno (2012) also researched the effectiveness of exposure-based treatment for symptoms of both PTSD and depression in combat-exposed OEF and OIF veterans. The study did not include any active military participants. Individuals excluded from the study included those who were: suicidal, actively psychotic, or met criteria for substance and/or alcohol dependence; however, Strachan et al. noted that, “to enhance generalizability of study findings”, participants

who were taking prescription psychotropic medications were allowed in the study, as were individuals receiving case management services for PTSD, mental health treatment for other psychiatric disorders, as well as those who met criteria for alcohol or substance abuse (pp. 562-563). Measuring outcomes with the CAPS, BDI-II, Beck Anxiety Inventory (BAI), structured clinical interview for DSM-III-R (SCID), and PCL-M, Strachan et al. treated 40 combat veterans for eight sessions; results indicated significant reduction in PTSD, depression, and anxiety as evidenced by the PCL-M, BDI-II, and BAI. No participant dropout rate was reported. Strachan et al. concluded these results supported the effectiveness of their therapeutic approach.

In another effectiveness study, Yoder et al. (2012) researched PET treatment outcomes with veterans from different wars diagnosed with PTSD. Participants included 112 veterans from the Vietnam War, the first Persian Gulf War, and the wars in Afghanistan and Iraq; however, no active military personnel were included. There were no exclusionary criteria reported, and all veterans had been previously diagnosed with PTSD, and the average age of the sample was 41. Veterans from the OEF/OIF/Afghanistan wars completed an average of 8.2 sessions with a dropout rate of 26%. The mean number of sessions completed by veterans of the first Persian Gulf War was 9.7, and the dropout rate was 12%. Vietnam veterans completed 10.2 sessions and had a dropout rate of 3%. For tracking treatment outcomes, Yoder et al. employed the PCL-M and the BDI-II. Researchers found a large effect size for PET treatment of the Vietnam veterans, first Persian Gulf War veterans, and the OEF/OIF/Afghanistan veterans; however, there were notable differences in response to treatment across the different theaters of war. Yoder et al. reported that “treatment effect size for Gulf War era

veterans was lower than the treatment effect sizes for Vietnam and OEF/OIF/OND veterans, and Gulf War era veterans' symptoms declined at significantly slower rates than those of the other two cohorts" (pp. 7-8). In addition, the study found that veterans from more recent conflicts (OIF/OEF/Afghanistan) completed treatment at a lower rate than veterans from older conflicts (Vietnam and the first Persian Gulf War).

Goodson, Lefkowitz, Helstrom, and Gawrysiak (2013) conducted a study regarding the effectiveness of PE treatment of PTSD. Goodson et al. treated 115 veterans from unspecified eras gathered from VA-related clinics, including those from the PTSD clinical team (n = 58), the general mental health clinic (n = 22), community-based outpatient clinics (n = 12), the addictions recovery unit (n = 11), the primary care mental health facility (n = 7), the opioid treatment program (n = 3), as well as the polytrauma unit (n = 2). No active military service members participated in the study. Participants were assessed using the PCL-M, Patient Health Questionnaire-9 (PHQ-9), and the Behavioral Health Questionnaire-20 (BHQ-20). Throughout the study, 25 different providers treated the 115 participants for the PTSD utilizing PE, and 84 completed treatment (73%). The mean number of sessions attended was 12. Of the participants, 86% were male, and of the total participants, 87 participants reported combat related trauma: "Vietnam = 42%; OEF/OIF = 28%; and Persian Gulf war = 5%," while the rest of the participants reported non-combat related trauma (p. 422). Furthermore, 86% of participants were diagnosed with a comorbid mental health disorder: including 78 participants with a depressive disorder, 32 with a substance use disorder, 13 with a non-PTSD anxiety disorder, and 13 with a traumatic brain injury. Goodson et al. stated

that participants completed 12 sessions on average, and outcome measurements indicated a 41% reduction of symptoms.

Stress Inoculation Training. McKibben, Britt, Hoge, and Castro (2009) examined the effectiveness of stress management training by comparing several outcome variables, including PTSD, among veterans who did and did not receive the training. No formal inclusionary or exclusionary criteria were reported, and no participants were active military personnel. The participants were 97% male, and 72% reported receiving stress management training in the last year. McKibben et al. were determining the results of previously administered stress management training, so there was no dropout rate due to the absence of treatment sessions. PTSD symptoms of participants were assessed using the PCL; results indicated that stress management training was effective, due to the fact that veterans who received stress management training reported significantly fewer PTSD symptoms compared to those who did not receive stress management training.

Eye Movement Desensitization and Reprocessing. Russell (2006) reported a multiple case study of EMDR treatment of combat-related stress disorders. Four combat veterans from the Iraq War requested “immediate relief of their posttraumatic symptoms prior to returning to the United States” (p. 1); all participants were active military. The four participants were assessed pre- and post-treatment using the SCID the Impact of Event Scale (IES), and the Subjective Units of Distress Scale (SUDS), and two were diagnosed with Acute Stress Disorder (ASD) while two others were diagnosed with PTSD. None of the participants dropped out. Due to the time constraints of the treatment situation, EMDR was provided in an abbreviated form, and all clients received one

session of EMDR treatment. Specifically, the focus of treatment was on the stabilization of symptoms for medical evacuation purposes. As a result, the installation and body scan phases of EMDR were omitted. Russell reported a significant improvement in all four clients after one session as measured by the IES and the SUDs.

Russell, Silver, Rogers, and Darnell (2007) conducted an effectiveness study regarding the EMDR treatment of active military personnel with PTSD. Researchers reviewed the treatment data from 72 active military personnel diagnosed with PTSD; of these cases, 48 were combat-related. Of the 72 participants, the average age was 32.5 years old, the average number of EMDR sessions was 4.2, and no participants dropped out. The average time since the participant's trauma was 9.4 months, and no exclusionary criteria were indicated; researchers placed an emphasis on combat-related PTSD, however this was not an inclusionary criteria. Russell et al. found a significant improvement in PTSD symptomology as indicated by the post-outcome measurements from the SUDs, Validity of Cognition Scale (VOC), Impact of Events Scale - Revised (IES-R), and BDI. Eight of the 72 participants had been wounded, and while no differences were found in treatment outcomes between wounded and non-wounded cases, individuals who were wounded averaged a higher number of EMDR sessions (8.5 sessions, compared to 3.82 for non-wounded participants).

Silver, Rogers, and Russell (2008) examined two case studies involving EMDR treatment of veterans previously diagnosed with PTSD; neither case study involved active military personnel. The first case study was a 22-year-old veteran of two tours in the Iraq war who was diagnosed with combat-related PTSD. Silver et al. described the participant's distress and PTSD symptomology using the SUDs outcome measure; after

four sessions of EMDR, the participant was able to resolve his PTSD. The second case was a 73-year-old Vietnam veteran diagnosed with “PTSD, anxiety, depression, and chronic and combat-related medically unexplained symptoms of frequent myoclonic movements that began in 1968” (p. 954). The participant received three sessions of EMDR treatment, and his progress was assessed utilizing the SUDs, the IES, the BDI, and the Beck Hopelessness Scale (BHS). Silver et al. concluded that EMDR was effective in treating both veterans, as indicated by improvements in treatment outcome scores.

Table 6

EBT Effectiveness Research With U.S. Military Populations Since 2004

Study and Treatment Modality	Trauma Type and Diagnoses	Population	Number of Subjects	Psychometric Measures	Average Number of Sessions Completed	Completion Rate	Improvement Rate
Russell (2006) Eye Movement Desensitization and Reprocessing	PTSD and ASD	Active Military	n = 4	SCID, SUDs, IES	1	100%	100%
Russell et al. (2007) Eye Movement Desensitization and Reprocessing	PTSD	Active Military	n = 72	SUDs, VOC, IES-R, BDI	4.2	100%	-
Silver et al. (2008) Eye Movement Desensitization and Reprocessing	PTSD	Veterans (Iraq, Vietnam)	n = 2	SUDs, BDI, IES, BHS	3.5	100%	100%
Zappert and Westrup (2008) Cognitive Processing Therapy	PTSD	Female Veterans (Unspecified)	n = 18	PCL	12	100%	83.3%
Rauch et al. (2009) Prolonged Exposure Therapy	PTSD	Veterans (Vietnam, OIF/OEF)	n = 10	PDS, BDI-II, PCI, DES, STI, CAPS, MINI	12.7	100%	90%
McKibben et al. (2009) Stress Inoculation Therapy	PTSD	Veterans (OIF)	n = 1760	PCL	N/A	N/A	-
McLay et al. (2010) Exposure Therapy and Virtual Reality Exposure Therapy	PTSD	Active Military	n = 6	PCL-M	ET = 9 VR ET = 6.5	100%	90%

Chard et al. (2010) Cognitive Processing Therapy	Combat-related PTSD	Veterans (OIF and OEF compared to Vietnam)	n = 101	CAPS, PCL, BDI-II	OEF/OIF = 10.67 Vietnam = 13.24	OEF/OIF = 65% Vietnam = 74%	OEF/OIF = 69% Vietnam = 40%
Alvarez et al. (2011) Group Cognitive Processing Therapy	PTSD symptoms	Veterans (Vietnam, Iraq/Afghanistan, and Other)	n = 197	PCL, BDI, WHOQOL-BREF, Brief COPE, SCL-6	-	-	41.3%
Cigrang et al. (2011) Exposure Therapy	PTSD	Active Military (OIF and OEF Veterans)	n = 15	PCL-M, PSS-I, PHQ-9, BHM, Beck Scale for Suicidal Ideation (SSI), DRRI	4.5	66%	50%
Reger et al. (2011) Virtual Reality Exposure Therapy	PTSD, anxiety disorder NOS	Active Military (OIF and OEF Veterans)	n = 24	PCL-M	7.4	-	65%
Strachan et al. (2012) Exposure Therapy	PTSD, PTSD symptoms, and Depression	Veterans (OIF and OEF)	n = 40	CAPS, BAI, BDI-II, PCL-M, Structured Clinical Interview for DSM-IV (SCID-IV)	8	77.5%	-
Yoder et al. (2012) Prolong Exposure Therapy	PTSD	Veterans (Vietnam, Gulf War, Afghanistan, OEF, OIF)	n = 112	PCL-M, BDI-II	OEF/OIF/ Afghanistan = 8.2 First Persian Gulf War = 9.7 Vietnam = 10.2	OEF/OIF/ Afghanistan = 74% First Persian Gulf War = 88% Vietnam = 97%	-
Goodson et al. (2013) Prolonged Exposure Therapy	PTSD	Veterans (Unspecified)	n = 115	PCL-M, PHQ-9, BHQ-20	12	73%	41%
Dickstein et al. (2013)	PTSD and sub-	Veterans (Unspecified)	n = 534	CAPS, PCL, BDI-II	8.44	-	-

Cognitive Processing Therapy	threshold PTSD							
Castillo et al. (2014)	PTSD	Veterans (Unspecified)	n = 271	CAPS, PCL	-	63.4%	55%	
Group Cognitive Therapy								
Kaysen et al. (2014)	PTSD and alcohol use disorders	Veterans (Pre-Vietnam, Vietnam, Gulf War, OEF, OIF)	n = 536	CAPS, PCL, BDI-II	9	-	-	

Summary of the Effectiveness Research With U.S. Military Populations Since 2004

Since 2004, only 17 effectiveness studies were found that researched the application of the four top tier psychotherapy treatments, with military populations, as recommended by VA and DOD (2010) guidelines. Although, of these 17 studies, only five were conducted with active military service members: Russell (2006), Russell et al. (2007), McLay et al. (2010), Cigrang et al. (2011), and Reger et al. (2011). Both Russell (2006) and Russell et al. (2007) researched EMDR treatment of activity duty military with PTSD. McLay (2010) researched ET and VR ET with PTSD-diagnosed active military, while both Cigrang et al. (2011) and Reger et al. (2011) researched ET treatment of active duty service members with PTSD. Furthermore, Russell (2006), Russell et al. (2007), and Silver et al. (2008) were the only three studies found by this literature review that researched the effectiveness of EMDR with military personnel, and only Russell (2006) and Russell et al. (2007) involved active military participants.

Outcome Measures and Sample Sizes

Outcome measures and sample sizes are presented in Table 6. There was consistency seen in outcome measures for the effectiveness studies reviewed. Across the 17 effectiveness studies found by this review, the most common outcome measurements employed were: some form of the PCL (PCL or PCL-M), some form of the BDI (BDI or BDI-II), and the CAPS. In regards to the sample sizes seen in effectiveness studies, eight of the studies reviewed included sample sizes over 100: McKibben et al. (2009) reported $n = 1760$; Chard et al. (2010) stated $n = 101$; Alvarez et al. (2011) noted $n = 197$; Yoder et al. (2012) reported $n = 112$; Goodson et al. (2013) reported $n = 115$; Dickstein et al. (2013) stated $n = 534$; and; Castillo et al. (2014) noted $n = 271$; and Kaysen et al. (2014)

noted n = 536; in contrast, several other studies reported sample sizes under 50: Russell (2006) reported n = 4; Silver et al. (2008) noted n = 2; Rauch et al. (2009) reported n = 18; Zappert and Westrup (2008) shared n = 10; McLay et al. (2010) stated n = 6; Strachan et al. (2012) shared n = 40, Reger et al. (2011) noted n = 24, and Cigrang et al. (2011) reported n = 15.

Requests for Effectiveness Research

The IOM (2012) recommended that the VA and DOD institute programs to gather data and research the effectiveness of all PTSD treatment interventions, including their recommended EBTs of ET, CT, SIT, and EMDR (p. 13). The IOM made note of the benefits of RCT research and emphasized how a lack of research regarding the clinical application of researched PTSD interventions represents a barrier to care for military personnel (p. 341). Both the IOM (2012) and Tanielian et al. (2008) recommended further research regarding effectiveness of PTSD EBTs utilized with military personnel; however, neither Tanielian et al. nor the IOM (2012) reviewed available effectiveness research when making their conclusions. Similarly, while the VA and DOD (2010) guidelines noted concerns regarding the external validity and generalizability of RCTs, the VA and DOD failed to include any effectiveness studies in their literature review.

Table 7

Requests for Effectiveness Research Contrasted With Reviews of Available Effectiveness Research

	Requested Effectiveness Research	Reviewed Available Effectiveness Research
VA and DOD (2010)	Yes	No
IOM (2012)	Yes	No
Tanielian et al. (2008)	Yes	No
Bradley et al. (2005)	Yes	No

Military Population Access to EBTs for PTSD

While VA and DOD (2012) guidelines endorse CT, ET, SIT, and EMDR as psychotherapy treatments for PTSD, the Congressional Budget Office (CBO, 2012) noted that the VA only guarantees access to CPT and PE. Relatedly, Russell and Silver (2006) found that only 10% of 137 surveyed DOD clinicians were trained to use any of the four VA and DOD recommended EBTs for PTSD. Regarding EMDR in particular, despite the recognition of EMDR as an EBT for PTSD, and the requests for further efficacy and effectiveness research, there is an absence of any funded RCTs on EMDR since 1998 (Russell, 2008b). While there is established resistance towards EMDR, the failure to appropriately research and utilize any established EBT for PTSD restricts scientific discovery as well as military personnel access to PTSD treatment (Russell, 2008b).

Controversies Regarding EMDR Research

Although they recommend EMDR as an EBT for PTSD, the VA and DOD (2010) guidelines also cited Jensen (1994) as an efficacy study that indicated that EMDR might be “less than optimal” for the treatment of PTSD (p. 130). Jensen conducted an efficacy study of the treatment of PTSD using EMDR with 25 veterans. Vietnam combat veterans were randomly assigned to either a control condition or to EMDR treatment; however, there were several methodological concerns in the study. For example, the therapists delivering the EMDR therapy were psychology interns with no clinical experience with EMDR. In addition, the 13 clients assigned to the EMDR treatment condition received only two treatment sessions. Furthermore, due to the wording of the consent form, control subjects knew after random assignment that they were not in the experimental group,

potentially biasing their outcome measures. Also, due to the relatively small sample size of the Jensen study, there may be insufficient statistical power to draw valid conclusions from the results. Finally, the independent fidelity reviewer noted insufficient fidelity with EMDR protocols, and specifically stated that, “the therapists did not appear to stay with, or continue in the active treatment phase with the videotaped subjects long enough to achieve resolution of symptoms” (Jensen, 1994, p. 321). Despite these limitations, Jensen found that post-test assessment of PTSD symptoms in the EMDR treatment group, as demonstrated by the Structured Interview for PTSD, failed to differ significantly from those of the control group. While it was noted that EMDR appeared effective in reducing “in-session anxiety upon exposure to traumatic cues,” Jensen concluded that the data was insufficient “to support the effectiveness of EMD/R with Vietnam combat veterans” (p. 321).

In addition, skepticism and controversy exists regarding the utilization of EMDR and its EBT status. For example, Albright and Thyer (2010) noted, “evidence supporting the use of EMDR to treat combat veterans suffering from PTSD is sparse and equivocal, and does not rise to the threshold of labeling the therapy as an empirically supported treatment” (p.1). In addition, Albright and Thyer concluded, “There are no well-designed RCTs comparing EMDR against real-life exposure therapy, a treatment with a much stronger level of empirical support in the treatment of PTSD, or, for that matter, against credible placebo-controlled therapies” (p.13). Similarly, the IOM (2008) also concluded there was insufficient evidence, in the form of RCTs, to determine the efficacy of EMDR; however, this report is highly criticized (Lee & Schubert, 2009). Specifically, Lee and Schubert noted that

the 2008 IOM report inaccurately represented positive outcomes for EMDR, failed to consider a number of available studies reviewing the benefits of EMDR, and excluded several positive EMDR studies without explanation. Despite criticism, the IOM (2012) referenced their own prior findings on EMDR, and maintained their stance from 2008 in their latest 2012 report.

Potential Benefits of EMDR Research With U.S. Active Military Personnel

The VA and DOD (2010) guidelines recommend EMDR as an EBT for PTSD with military populations, and cite support for EMDR as an efficacious treatment for patients with PTSD due to a review of the existing literature. The efficacy of EMDR has been established in approximately 20 RCTs treating PTSD with both civilian populations (e.g., Lee, Gavriel, Drummond, Richards, & Greenwald, 2002; Rothbaum, Astin, & Marsteller, 2005; van der Kolk et al., 2007) and combat veteran populations (e.g., Carlson, Chemtob, Rusnack, Hedlund, & Muraoka, 1998). Furthermore, the supporting literature included a meta-analysis by Bisson et al. (2007), in addition to the conclusions arrived at by other guidelines, such as those generated by a task force for the International Society for Traumatic Stress Studies (ISTSS) (Spates, Koch, Cusack, Patago, & Waller, 2009). Similarly, a meta-analysis by Maxfield and Hyer (2002) compared EMDR against waitlist controls, cognitive behavior therapy involving exposure, and treatment modalities described as other than CBT. They found the results of the EMDR trials to be superior to the waitlist control condition, an “overall superiority of EMDR compared to the other active treatment conditions” (VA & DOD, 2010, p. 129).

EMDR therapy has a number of benefits as treatment for trauma, such as a limited need for self-disclosure; this is a noted benefit according to the VA and

DOD Clinical Practice Guidelines for the Treatment of Traumatic Stress Disorders (2010). The VA and DOD guidelines noted that the goal of EMDR is to ease the distress associated with traumatic memories through assisting patients in accessing and processing traumatic memories until adaptive resolution is achieved.

Meta-analyses have studied the efficacy of EMDR and concluded that it is at least as efficacious in the treatment of trauma as exposure therapy and trauma-focused cognitive behavioral therapy (Bisson et al., 2007; Bradley et al., 2005). Furthermore, specific studies have highlighted that EMDR provides rapid treatment gains for physical presentations that make it well suited for clinical settings such as the VA and DOD (Russell, 2008a).

Limitations of EMDR effectiveness research. Russell (2006), Russell et al. (2007), and Silver et al. (2008) were the only studies found by this literature review that conducted an effectiveness study of EMDR with a military population; furthermore, Russell (2006) and Russell et al. (2007) were the only two studies involving participants who were active military personnel. As noted by Bradley et al. (2005), there are inconsistent outcome measures utilized in all EMDR effectiveness research, and in EBT research in general (IOM, 2012); due to these inconsistent outcome measures, there is ambiguity regarding the exact improvement participants receive from treatment. Across the literature regarding psychotherapy for PTSD, researchers commonly note what percentage of participants no longer meet criteria for PTSD after treatment (Bradley et al., 2005); however, participants can still fall below clinical thresholds by changing or losing one or two symptoms while continuing to be highly symptomatic. In addition, the

definition of meeting PTSD is variable, depending on the specific outcome measure employed by researchers.

Allegiance Effects in Research

Luborsky, Singer, and Luborsky (1975) first coined the term *therapeutic allegiance of the experimenter*, and expressed concerns that “the therapeutic allegiance of the experimenter might in some way influence the results” of psychotherapy research (p. 1003). A number of meta-analyses of research on psychotherapy effectiveness have investigated the statistical relationships between the allegiances of the investigators and the outcomes they report, leading to concern that allegiance biased the results in favor of the treatment the investigator believes in (Gaffan, Tsaousis, & Kemp-Wheeler, 1995; Luborsky et al., 1999, 2002; Robinson, Berman, & Neimeyer, 1990). While this concern could be an issue in any type of psychotherapy, including RCTs, the real-world nature of effectiveness research indicates that the practicing clinician will typically have a strong belief in the therapeutic approach they are employing. This limitation was further substantiated through a meta-meta-analysis conducted by Munder, Brusch, Leonhart, Gerger, and Barth (2013), finding robust and substantial allegiance effects across diverse settings of outcome research. While not necessarily feasible in most real-world settings, recommendations included conducting research collaboratively using teams with mixed allegiances, in addition to working towards ensuring that therapists in all treatment conditions are skilled and confident in the treatment they are delivering. At the least, it is suggested that effectiveness research studies consider allegiance effects as a potential explanation of their findings; none of the research reviewed for this study explicitly explored this concern.

Chapter III: Pilot Study on Potential Effectiveness of Implementing a PTSD-EBT

Rationale for This Pilot Study

Efficacy studies have emerged as the standard means of demonstrating through research that therapies work (Kazdin 2008, 2011). The emergence of efficacy studies and EBTs raises concerns as to whether or not efficacy research regarding how well therapies work can be generalized to actual real-world treatment settings (Kazdin, 2008). Given the plethora of efficacy studies on psychotherapy treatments for PTSD, Bradley et al. (2005) suggested publishing real-world research regarding the effectiveness of therapies in order to influence the practice of therapists. Research regarding the effectiveness of EBTs is important due to the gap in the literature regarding the generalizability of EBTs, including EMDR, in actual clinical settings with military personnel (IOM, 2012; Tanielian et al., 2008); specifically, few studies have examined the effectiveness of EMDR in real-world clinical settings, especially with military personnel and their families (IOM, 2012; Tanielian et al., 2008). Effectiveness studies may serve to compliment efficacy settings through providing evidence of the real-world generalizability of treatment (Bradley et al., 2005; Kazdin, 2011). To address this gap in the literature, the current pilot study intends to explore the potential benefits and challenges in conducting effectiveness research with active military personnel and their families using a variety of widely employed psychometric measurements.

Methods

Review of archival treatment data. Data from 99 archived or ‘closed’ treatment charts were analyzed. Of the 99 available archived cases, 49 (49.5%) came

from data set A, provided by the supervisor of an outpatient clinic overseas (see Table 8). The remaining 50 (50.5%) cases of the raw data came from data set B, consisting of unpublished cases provided by clinicians delivering outpatient EMDR therapy for military personnel or their family members in military outpatient clinics (Russell et al., 2007; see Table 9). The raw information provided by data set A and B involved no protected health information or any other personal demographical or clinical information. All potentially identifying client information was altered before treatment charts were shared in order to protect client confidentiality.

Both data set A and set B came from the real-world setting of military community counseling centers. As a result of this shared setting, clinicians who contributed data in both sets selected EMDR treatment due to clinical factors of the case, and clients chose to participate in EMDR therapy. Furthermore, since clients had freedom to select services, many may have received other services (e.g., separate couples counseling, medications, etc.). No distinction was made in case selection regarding: gender, race/ethnicity, sexual orientation, status (e.g., military, civilian, retired), military rank, branch of service, presenting problem, reason for referral, clinical diagnosis, or number of treatment sessions, other than the required sample selection of charts reflecting use of EMDR therapy. In addition, all cases involving EMDR therapy were provided for this review, and no EMDR case was excluded for any reason. All of the clients processed traumatic events during their EMDR therapy. Given these similarities between data set A and set B, the archival treatment charts from both sets were joined to combine of all the available data, and shall henceforth be referred to, and analyzed, as a single data set (see Table 10).

All clients in the data set received mental health services via the military healthcare system. Specifically, clients received outpatient mental health care from staff mental health clinicians at military community mental health clinics. Due to variations in record keeping and limitations resulting from time constraints (e.g., instrument availability, patient availability, and time availability), not all clients received all of the pre- and post-outcome measures; given the variety of outcomes measures used throughout the data set, the following common measures were utilized for statistical analysis: the Subjective Units of Disturbance, the Validity of Cognition Scale, the Beck Depression Inventory-II, the Beck Anxiety Inventory, and the PTSD Checklist-Military. These data were treated as a pilot study for the implementation of effectiveness research in real-world clinical settings; as a result, while these data include a number of confounding variables, the data analysis serves as a possible model for future effectiveness research.

Table 8

Pilot Study Archival Data Set A

	Active Duty	Family Members	Civilian Contractors	Retired Veterans	All Cases
	(Total, %)	(Total, %)	(Total, %)	(Total, %)	(Total, %)
Total	37 (76%)	11 (22%)	1 (2%)	0 (0%)	49 (100%)

Table 9

Pilot Study Archival Data Set B

	Active Duty	Family Members	Civilian Contractors	Retired Veterans	All Cases
	(Total, %)	(Total, %)	(Total, %)	(Total, %)	(Total, %)
Total	28 (56%)	11 (22%)	8 (16%)	3 (6%)	50 (100%)

Sample description. All clients were age 18 or older. There were no inclusionary or exclusionary criteria for the collected archival cases. Due to the archival nature of the data, some demographic information was unavailable at the time of this analysis. As seen in table 10, of the combined 99 archival cases, 65 were active-duty military personnel, 22 were family members or spouses, nine were civilian contractors, and three were retired veterans. While there were a number of presenting problems among the 99 archival cases, PTSD was identified as the primary diagnosis for 65 (65.7%) of the clients.

Of the archival cases diagnosed with PTSD, 42 involved combat while 23 were non-combat related. In addition to identified primary diagnoses of PTSD, there were two cases with a primary diagnosis of combat-related Acute Stress Disorder, 11 cases with a primary diagnosis of Adjustment Disorder, five cases with a primary diagnosis of Anxiety Disorder, three cases with a primary diagnosis of Major Depressive Disorder, two cases with a primary diagnosis of Dysthymic Disorder, and one case with sub-clinical PTSD symptomology. For ten out of the 99 cases, the archival data did not contain diagnostic information. Similarly, not all of the archival records included complete client demographic data. Specifically, data regarding age was available for 83% of the archival cases, while data regarding gender was only available for 49% of the cases. According to the data available from 49 cases, 63% of the participants were male. Of the 83% of the cases with information regarding the age of participants, the average age for those cases was 32.8 years old (see Table 11 for further demographical information).

Table 10

Pilot Study Combined Patient Demographic Table

	Active Duty	Family Members	Civilian Contractors	Retired Veterans	All Cases
Total	65	22	9	3	99
Age (Mean, SD)	29.1, 7.8	33, 10	42, 2.6	70, 4.9	32.8, 11.3
Rank (Min, Max, Mean)	2, 14, 5	-	-	-	-
EMDR Treatment Sessions (Mean, SD)	7.9, 6.6	6.8, 5.1	3.7, 7.9	5, 3.4	7.2, 6.4
Primary Diagnoses	Combat PTSD (39)	Non-Combat PTSD (8)	Non-Combat PTSD (4)	Combat PTSD (3)	Combat PTSD (42)
	Non-Combat PTSD (11)	Unknown (8)	Adjustment D/O (3)		Non-Combat PTSD (23)
	Adjustment D/O (5)	Adjustment D/O (3)	Anxiety D/O (1)		Adjustment D/O (11)
	Anxiety (3)	Anxiety D/O (1)	Dysthymia (1)		Unknown (10)
	Combat ASD (2)	Major Depressive D/O (1)			Anxiety (5)
	Major Depressive D/O (2)	Dysthymia (1)			Major Depressive D/O (3)
	Unknown (2)				Combat ASD (2)
	Sub-clinical PTSD (1)				Dysthymia (2)
					Sub-clinical PTSD (1)

Measurements

Data regarding effectiveness were obtained through archival measurements from chart reviews, as the evaluation of client progress throughout treatment for their trauma was tracked according to the following psychometric measures:

Subjective Units of Disturbance Scale. The first measure, the SUDS (Wolpe, 1982) was originally employed by Shapiro (2001) to assess disturbances accompanying a remembered traumatic experience during EMDR treatment. The SUDS is a 0-10 self-report scale where zero signifies lack of any distress and 10 represents the highest disturbance imaginable. Furthermore, this scale has been demonstrated to correlate with objective physiological indicators of stress, including pulse rate ($r = .39$; $p < 0.05$) and peripheral vasoconstriction ($r = -.84$; $p < 0.01$; Thyer, Papsdorf, Davis, & Vallecorsa, 1984). The SUDS is based on face validity. Of the 99 archival cases analyzed in this pilot study, 98 (99%) cases contained pre- and post-outcome scores for the SUDS.

Validity of Cognition Scale. The second measure, the VOC (Shapiro, 2001) is a 1-to-7 Likert-type self-report scale where 1 represents a completely unbelievable cognition that is adaptive for the reporter, and 7 represents a cognition that is totally believable. It is used during EMDR treatment to assess the client's acceptance of a new positive cognition, with the goal of replacing any current negative cognition. The VOC is based on face validity. Of the 99 archival cases analyzed, 90 (91%) cases contained pre- and post-outcome scores for the VOC.

Beck Depression Inventory-II. The BDI-II (Beck, Steer, Ball, & Ranieri, 1996) is a 21-item self-report measure of depressive symptoms with scores ranging from zero to 63. For the BDI-II, Beck et al. reported an internal consistency of .91 and a test-retest

reliability of .93. In addition, Beck et al. reported a convergent validity of .71 with the Hamilton Psychiatric Rating Scale for Depression. Of the 99 archival cases analyzed, 43 (43%) cases contained pre- and post-outcome scores for the BDI-II.

Beck Anxiety Inventory. The BAI (Beck, Epstein, Brown, & Steer, 1988) is a 21-item self-report measure of anxiety symptoms with scores ranging from zero to 63. In their preliminary study of the BAI, Beck et al. reported an internal consistency of .92 and a test-retest reliability of .75. Also, Beck et al. reported a convergent validity of .51 with the Hamilton Anxiety Rating Scale. Of the 99 archival cases analyzed, 28 (28%) cases contained pre- and post-outcome scores for the BAI.

PTSD Checklist – Military. The third measure, the PCL-M (Weathers, Litz, Herman, Huska, & Keane, 1993) is the military version of the PCL, a 17-item self-report measure of PTSD. Weathers et al. reported test-retest reliability scores with Vietnam veterans above the recommended level of .70. In order to synthesize the results regarding the psychometric properties of the PCL-M, Wilkins, Lang, and Norman (2011) reviewed 72 studies that employed the PTSD checklist. While Weathers et al. (1993) of the PCL-M found internal consistency scores above .80, Wilkins et al. (2011) found other studies reported total score values of above .75. In addition, when researching convergent validity, Wilkins et al. found that the PCL-M demonstrated a kappa of .64 with the PTSD section of the SCID with Vietnam veterans in PTSD treatment. Of the 99 archival cases analyzed, 22 (22%) cases contained pre- and post-outcome scores for the PCL-M.

Table 11

Pilot Study Pre- and Post-Outcome Measures Table

Measure	Active Duty (Total, %)	Family Members (Total, %)	Civilian Contractors (Total, %)	Retired Veterans (Total, %)	All Cases (Total, %)
SUDS	65 (100%)	21 (95%)	9 (100%)	3 (100%)	98 (99%)
VOC	58 (89%)	21 (95%)	8 (89%)	3 (100%)	90 (91%)
BDI-II	44 (67%)	6 (27%)	4 (44%)	3 (100%)	57 (57%)
BAI	28 (28%)	4 (18%)	0 (0%)	0 (0%)	32 (32%)
PCL-M	22 (22%)	2 (1%)	0 (0%)	0 (0%)	24 (24%)

Chapter IV: Results

Archival clinical data was examined for the effectiveness of EMDR treatment as demonstrated through the pre- and post-outcome measures of the SUDS, VOC, BDI-II, BAI, and PCL-M.

All SUDS Cases

Of the 99 archival cases reviewed, 98 clients received pre- and post-outcome scores for SUDS. These 98 cases with SUDS scores represent the largest section of homogenous outcome measure data within this dataset (see Table 11). As with any in-session outcome measures, SUDS scores are beneficial in aiding clinicians in developing treatment and identifying effective treatment approaches (Smith, Fischer, Nordquist, Mosley, & Ledbetter, 1997). While SUDS scores alone only represent one measure of treatment progress, these data were analyzed in order to provide the largest possible sample size this study could provide across all participating demographical groups.

All SUDS and VOC Cases

In addition to the 98 cases with complete SUDS data, 90 cases also include pre- and post-outcome data for VOC (see Table 11).

Active Military Cases With SUDS, VOC, and BDI-II

In contrast to the SUDS and VOC analysis designed to capitalize on homogenous outcome measures, a more rigorous statistical analysis was conducted on a homogenous participant sample of active military participants. Of the 99 total archival cases, 43 active military cases were selected that contained completed SUDS, VOC, and BDI-II scores (see Table 11). These 43 cases involved active military participants who were seen by

three different therapists. Furthermore, 28 of these 43 cases, from one specific therapist, also included both pre- and post-outcome scores for the BAI. In addition, 22 cases from that same therapist also included the PCL-M scores, in addition to the SUDS, VOC, BDI-II, and BAI scores.

Data Analysis Approach

Appropriate for an effectiveness study, the initial statistical analysis of this study was conducted on the maximum number of cases possible, despite differences in type of trauma, gender, status, therapist, and setting. This analysis was conducted due to the external validity of this largest possible sample. These 98 cases represent the most diverse possible selection of this dataset with pre- and post-outcome measures, and best reflect the nature of trauma-focused treatment in an outpatient setting in a military context. In addition, another analysis was conducted in an effort to demonstrate the most rigorous possible analysis of the available data; specifically, the results of a smaller yet homogenous sample of active military personnel with more varied outcome measures were analyzed.

Analysis

In order to discuss the largest possible sample size available through these data, 98 cases were analyzed according to their pre- and post-SUDS scores. In addition, 90 of these cases involved pre- and post-VOC scores, and were also analyzed. These 90 cases represent the most homogenous group of outcome measures within the data set.

In contrast to the homogenous outcome measures group, there was also an analysis of a homogenous participant group consisting of only active military cases. Among the 99 available cases, there were 43 cases with active military personnel

receiving treatment from three different therapists who all recorded BDI-II, SUDs, and VOC pre- and post-outcome data; in addition, 28 cases of this subgroup also included pre- and post-outcome scores for the BAI, while 22 cases recorded pre- and post-outcome scores for the PCL-M. Since these particular 43 cases involved only active duty military personnel, there is increased homogeneity within this sample, compared to the heterogeneous nature of the entire data set of 99 archival cases. This subset of 43 cases was analyzed to demonstrate the most rigorous possible statistical analysis given the nature of these data.

Homogenous outcome measures: SUDS and VOC analysis with all groups.

While the archival data for these cases came from ten different therapists in different military community settings, a factorial ANOVA on the influence of the therapeutic provider variable was not conducted, as the data did not meet the assumptions for a factorial ANOVA. Therefore, to assess for the multivariate normality of the sample resulting from the use of various outcome measures, the Mahalanobis distances (min = .275, max = 25.515, mean = 3.956, SD = 4.359) were calculated for all 98 cases using a linear regression analysis ($F = 9.471, p < .0005$). Only one outlier was found, a participant for whom both SUDS and VOC scores decreased over the course of treatment. Such a trend indicates that for this individual, their subjective disturbance decreased throughout treatment, but so did the validity of their replacement cognition. Since a multivariate analysis of variance (MANOVA) is able to tolerate a few outliers (Pallant, 2007), data from this participant was included in the overall analysis, as this was determined to best reflect the effectiveness goals of this pilot study. Pre- and post-treatment outcome scores were used as covariates. As a result, given the

demonstrated multivariate normality of the data, the covariance was analyzed for the cases with 98 pre- and post-SUDS scores as well as the 90 pre- and post-VOC scores.

The resulting MANOVA of pre- and post-outcome scores for SUDS and VOC generated a significant Wilks' Lambda ($F(2, 88) = 501.880, p < .0005, \Lambda = .080, \eta^2 = .92$), indicating a significant difference between the dependent variables of SUDS and VOC. Given this significant difference, it was determined that the SUDS and VOC assessed different variances within subjects, and could therefore be separately analyzed. As a result, the SUDS ($n = 98$) and VOC ($n = 90$) were both analyzed utilizing paired t-tests and presented in Table 12. The improvements in SUDS scores were significant across all 98 cases ($t(97) = 28.720, p < 0.0001$); similarly, the VOC scores of all 90 participants also made significant increases ($t(89) = -18.215, p < 0.0001$). These significant improvements in both the SUDS and VOC scores indicate that the disturbance associated with the targeted traumatic memories of the participants had been largely eliminated, and that a new, more positive perception of the memories had developed.

Table 12

Pilot Study SUDS and VOC Results Table

Measure	Pre-treatment	Post-treatment	Improvement After Treatment	p
	Mean, (SD)	Mean, (SD)		
SUDS (n = 98)	7.64, (2.012)	0.87, (1.476)	6.78	< 0.0001
VOC (n = 90)	3.21, (1.963)	6.92, (0.269)	3.71	< 0.0001

Homogenous participant analysis: BDI-II, BAI, and PCL-M analysis for active military personnel. As these cases were assessed using a variety of treatment measures (SUDS, VOC, BDI-II, BAI, and PCL-M), it was again necessary to determine

the multivariate normality of the sample. To assess for the multivariate normality of these cases, the Mahalanobis distances (min = 2.232, max = 13.892, mean = 5.714, SD = 3.461) were calculated for these cases using a linear regression analysis ($F = 2.663$, $p < .061$), and no outliers were found. Furthermore, since these cases came from three different therapists, it was necessary to eliminate the therapist differences as a potential influencing factor regarding treatment outcome. Therefore, these 43 cases were analyzed using a factorial ANOVA ($F(2, 40) = 1.387$, $p < .262$, $\Lambda = .935$, $\eta^2 = .065$). No significant interaction was found between providers and treatment. Since there was no significant interaction resulting from therapist interaction, therapist effects were not considered as an independent variable.

In addition, of the 43 active military service member cases with BDI-II data, 28 of these cases from one therapist also included both pre- and post-outcome scores for the BAI. Furthermore, 22 cases from that same therapist also included the PCL-M. In order to ensure that dependent t-tests on the BDI-II, BAI, and PCL-M variables would not analyze the same variance, these 43 cases were analyzed using a MANOVA ($F(3, 18) = 26.790$, $p < .0005$, $\Lambda = .183$, $\eta^2 = .817$). These results indicate that there are significant differences among the groups of BDI-II, BAI, and PCL-M scores; as a result, all 43, and the three different outcome measures, cases were all analyzed separately using dependent t-tests.

Therefore, the pre- and post-treatment scores from the outcome measures of BDI-II ($n = 43$), BAI ($n = 28$), and PCL-M ($n = 22$) were all analyzed utilizing paired t-tests as presented in Table 13. Among the active military service member participants, the improvements in BDI-II scores from after EMDR treatment were significantly

improved across all 43 cases ($t(42) = 9.586, p < 0.0001$). For the same population, BAI scores also improved significantly after EMDR treatment for all 28 participants ($t(27) = 4.551, p < 0.0001$); in addition, scores on the PCL-M after EMDR treatment of active military service members ($n = 22$) similarly demonstrated a significant improvement ($t(21) = 9.135, p < 0.0001$).

Table 13

Pilot Study Active Military BDI-II, BAI, and PCL-M Results Table

Measure	Pre-Treatment Mean, (SD)	Post-Treatment Mean, (SD)	Improvement After Treatment Mean	<i>p</i>
BDI-II (n = 43)	25.35, (10.488)	6.51, (7.052)	18.84 (on a scale of 0-63)	< 0.0001
BAI (n = 28)	22.93, (14.877)	8.21, (8.591)	14.72 (on a scale of 0-63)	< 0.0001
PCL-M (n = 22)	55.55, (15.417)	27.82, (10.595)	27.73 (on a scale from 17-85)	< 0.0001

Chapter V: Discussion

The primary goal of the current pilot study was to illustrate the value of effectiveness research for military populations; in doing so, the results also highlighted the relative ease and benefits of tracking treatment progress. Following the recommendations of both the IOM (2012) and Tanielian et al. (2008), data was gathered regarding the effectiveness of an EBT PTSD intervention in a military setting. Tanielian et al. (2008) reported a dearth of available information regarding the quality of mental health care provided in military settings. Specifically, the lack of routine and consistent outcome measures was cited as a primary cause for this gap in quality assessment (Tanielian et al., 2008, p. 300). Relatedly, Bradley et al. (2005) recommended that effectiveness research be conducted as a method of demonstrating how EBTs perform in the community (p. 226); although, while the VA and DOD (2010), IOM (2012), Tanielian et al. (2008), and Bradley et al. (2005) recommended further effectiveness research regarding the clinical utility of EBTs, there is a contradiction in that none of these authors review effectiveness research in their publications.

The current pilot study addresses these gaps in the literature through the analysis of an EBT as utilized with military populations in a military community setting. Treatment outcome measures employed in this pilot study were the most commonly used outcome measures found through a literature review of the both efficacy and effectiveness research published since the release of the VA and DOD guidelines (2004, 2010). As a result, the potential implications of employing EBTs and tracking treatment progress in real-world settings were demonstrated. Through the utilization of commonly employed outcome measures, significant improvements in PTSD symptomology were

found; thereby illustrating the effectiveness of an EBT in treating active military personnel, their family members, veterans, and civilian contractors in a real-world setting.

Before exploring the potential implications of these results, it is necessary to acknowledge the limitations of the current pilot study. As an effectiveness study of an EBT, this study was subject to all of the common limitations of outcome research. These limits include: a lack of treatment outcome data from all the archival data of all cases; an inability to ensure the sample used was random and representative of all treated patients; and an absence of comparison treatment. In addition, archival case data was gathered only from volunteer clinicians who functioned in diverse environments with differing resources. Allegiance effects should also be taken into consideration, as the treating clinicians all believed in their choice of treatment. Furthermore, there was no control group, and there were no independent raters of the treating clinicians. As acknowledged at the beginning of this project, these factors prevent the findings from being considered definitive efficacy research regarding EMDR; however, they do not prevent the results from contributing to effectiveness research on EMDR and PTSD EBTs in general (Bradley et al., 2005; Tanielian et al., 2008).

The potential effectiveness of an EBT, specifically EMDR, in treating a variety of mental health disorders in a military community setting was demonstrated. A primary criticism of RCTs conducted with EBTs is the lack of generalizability to practical clinical settings (Chambless & Hollon, 1998; Kazdin, 2008; Seligman, 1995). One frequently cited cause of the lack of generalizability of RCT results is participant screening due to exclusionary and inclusionary criteria that usually

eliminates comorbid concerns frequently encountered in the real world (Chambless & Hollon, 1998; Kazdin, 2008, 2011; Seligman, 1995). As the current pilot study was designed as effectiveness research, no research-based exclusionary or inclusionary criteria were established; therefore, through the inclusion of all participants, these results demonstrated the generalizability and applicability of an EBT, specifically in a military community setting with active military personnel, their families, civilian contractors, and veterans.

While the topic is rarely discussed in the literature, it should be noted that all therapeutic modalities, including EMDR, have implicit and explicit inclusionary and exclusionary criteria. For example, when reviewing the appropriateness of EMDR therapy for a particular client, clinicians employ a screening for Dissociative Disorder (Shapiro, 2001); special preparation for clients with Dissociative Disorder is necessary, and in some cases, EMDR may not be advisable with those individuals. Furthermore, other criteria are considered, such as: life threatening substance abuse, serious suicide attempts, self-mutilation, inadequate social support, medical conditions, and neurological impairment (Shapiro, 2001). Similarly, exclusionary and inclusionary criteria exist for all treatment modalities. In effectiveness research, therapists and clients both must agree on a particular therapy before beginning treatment. While the effectiveness research is not imposing additional inclusionary or exclusionary criteria, both implicit and explicit criteria exist as part of the modality selection by therapist and client. Therefore, while it may not be discussed in the research literature, all effectiveness research will inherently include exclusionary and inclusionary criteria; as a result, this concern should be kept in

mind when reviewing research literature.

Of the 99 archival cases reviewed, the majority (n = 65) were active military personnel. Similarly, the most common diagnoses were combat-related PTSD (n = 42) and non-combat related PTSD (n = 23). Across all outcome measures utilized (SUDS, VOC, BDI-II, BAI, and PCL-M), the results after treatment indicated significant improvement ($p < 0.0001$). The results demonstrated how common in-session outcome measures can serve to aid clinicians in identifying the effectiveness of their treatment approaches, as highlighted by Smith et al. (1997). In service of recommendations made by the IOM (2012) and Tanielian et al. (2008), the outcome measures utilized for this pilot study provide a common, consistent, and approachable method for tracking treatment progress in addition to beginning the process of illustrating the long-term effectiveness of EBTs.

Tracking Treatment Outcomes

As reported by both the IOM (2012) as well as Tanielian et al. (2008), the VA and DOD lack a formalized methodology for tracking treatment progress; therefore key treatment questions remain unanswered. Specifically, the IOM (2012) suggested that the lack of effectiveness research from the VA and DOD demonstrates a barrier in accessing mental health care for military personnel, as this lack impedes the “translation of research findings into practice” (p. 341). Furthermore, the IOM noted that the VA and DOD needed to address concerns about the generalization of research with other populations and settings into treatment for military personnel in military settings. The VA and DOD are in a unique position to examine which veterans are pursuing treatment and what types of treatment those veterans are receiving (IOM, 2012, p. 364; Tanielian et al., 2008,

p. 290); as a result, outcome measures might provide valuable information regarding if and how veterans are benefiting from treatment. The IOM (2012) also recommended that EBTs for PTSD should be provided to military personnel as quickly possible, and that progress should be assessed throughout treatment. Results from the tracking of treatment outcomes should inform the appropriateness of long-term treatment. This pilot study provides a potential model for the tracking of EBT treatment of PTSD through the use of outcome measures commonly utilized across the literature; the results illustrated the significant impact of an EBT intervention for PTSD and other diagnoses with military personnel and their families.

A Potential Effectiveness Research Model

The current pilot study presents a potential or partial model for effectiveness research, highlighting the benefits of research conducted in real-world settings despite the confounding and complicating variables. Particular attention should be given to the benefits for military and their families resulting from addressing the long-term consequences of trauma-related disorders, as the untreated symptoms of trauma can negatively impact veterans, their families, and their communities (IOM, 2012; Tanielian et al., 2008). Furthermore, veterans, the military, and society at large can benefit from early intervention, as it might aid veterans in either continuing their military career or pursuing other career opportunities with fewer disruptions (IOM, 2012; Russell et al., 2007; Tanielian et al., 2008).

The framework for the current study was the demonstration of a feasible means for researching already-established EBTs. Given that the VA and DOD (2010) guidelines clearly endorsed four well-researched and efficacious therapeutic approaches, this study

focused on the potential benefit of implementing EBTs, especially in the treatment of trauma and combat-related PTSD. The result provides a potential or partial model for clinicians to implement EBTs, such as those recommended by the VA and DOD guidelines (2010), track their effectiveness in community settings, and contribute to the understandings of the field.

These results are an example of how clinicians can, with relative ease, monitor results in the real-world settings, track therapeutic change, and review treatment results; however, inconsistent outcome measure across archival data presented a limitation. Similarly, while the current study lacked the internal validity of a rigorous efficacy study, it demonstrated the viability of effectiveness research through analysis of several common outcome measures. Given the dearth of outcome research (Bradley et al., 2005; Tanielian et al., 2008), particularly with the vulnerable population of recently returned from overseas veterans, these results represents a feasible method for how therapists can track outcomes. Future studies could improve on this model through improved record keeping, including demographic characteristics of participants, and the consistent use of common outcome measures. In this way, clinicians in the field can operate as researchers and collect data utilizing relatively unobtrusive self-report measures, and thereby contribute towards the overall advancement of the field. For example, all of the measures utilized in this research were self-report, and took relatively little time for client and therapist to complete.

Potential allegiance effects. While Munder et al. (2013) reported that allegiance effects might explain the findings of effectiveness research, similar concerns could be voiced regarding the impact of researcher belief on the results in efficacy studies. As

Luborsky et al. (1975) noted, the therapeutic alliance of any researcher could influence results; as a result, any therapeutic alliance between researcher or clinician and participant or client must be taken into consideration. Munder et al. (2013) provided recommendations that may control allegiance effects; however, those recommendations may not be feasible in most real-world settings. Furthermore, these recommendations may introduce obstacles, financial or methodological, that make effectiveness research unattainable.

Developing Standards for Effectiveness Research

Instead, the field may benefit from the introduction of standards for effectiveness research. While many criteria do not apply, some of the standards from the Platinum Standard of efficacy research established Hertlein and Ricci (2004) are relevant to effectiveness research, and could serve as a starting point. Of greatest benefit are Platinum Standards one and two: clearly defined target symptoms, and reliable and valid measures. Platinum Standards three is not applicable to real-world settings, as a blind and independent assessor is not typically available or practical, and therefore Platinum Standard four regarding assessor reliability is also not a concern. The fifth Platinum Standard, regarding manualized treatment, does not accurately capture the flexibility of real-world treatment. While a clinician may be using a manualized treatment as part of psychotherapy, the situation may call for a change in treatment technique or therapeutic approach; as a result, while this Standard may be utilized in some effectiveness research, it cannot be a requirement. Due to client and therapist choice of therapy in the real world, the random assignment as recommended by Platinum Standard six does not apply. Platinum Standard seven, treatment adherence, would require fidelity assessment, and is

therefore impractical in most real-world settings. Similarly, Platinum Standard eight regarding non-confounding conditions, is an uncontrollable factor in a typical clinical settings. In contrast, Platinum Standards nine and ten, the use of multimodal measures and the length of treatment, are both factors that can be taken into consideration during effectiveness research. Platinum Standard 11, reported level of therapist(s) training, is highly relevant to effectiveness research; however, Platinum Standard 12, use of a comparison or control group, does not apply to effectiveness research. Finally, Platinum Standard 13, effect size reporting, is not necessarily relevant to effectiveness research as there is no control group.

Therefore, proposed effectiveness standards can be based upon efficacy Hertlein and Ricci's (2004) Platinum Standards one, two, nine, ten and 11: clearly defined target symptoms; reliable and valid measures; the use of multimodal measures; the length of treatment; and the level of therapist training. The inclusion of clearly defined target symptoms is an element of good clinical practice, and can be enhanced through the inclusion of a treatment plan and diagnosis if applicable. Relatedly, the utilization of reliable and valid measures, be they self-report or otherwise, allows for the collection of data outside of clinical interviews and observations. Ideally, there would be standards established in the field regarding the assessment of various disorders. To this end, the American Psychiatric Association (2014) published online assessment measures that compliment disorders as established in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5); the widespread utilization of assessment measures such as the Severity of Posttraumatic Stress Symptoms measure could lead to standardization of outcome measures. Furthermore, the inclusion of multimodal

measures, such as the use of self-report measures in addition to behavioral measures or interview, adds additional data points for analysis in effectiveness research. While the length of treatment is highly variable depending on the therapeutic goals and type of psychotherapy, tracking such information is undoubtedly beneficial to the research and assessment of psychotherapy effectiveness. In addition, the level of therapist training provide context for the therapeutic intervention, and can be used to validate therapist competency.

In some treatment settings there may be utility for Platinum Standards five and seven: manualized, replicable, specific treatment, and treatment adherence; although, it may be the case that many real-world treatment settings will not specifically adhere to a manualized treatment consistently for the duration of treatment. Rather, due to any number of comorbid or confounding concerns, psychotherapy will respond to relevant presenting concerns and crises. This flexibility of treatment, sometimes in response to the inclusion of comorbid or confounding concerns, emphasizes the external validity of effectiveness research.

Table 14

Proposed Effectiveness Research Study Standards

Clear Standards
Standard 1: Clearly defined target symptoms
Standard 2: Reliable and valid measures
Standard 3: The use of multimodal measures
Standard 4: The length of treatment
Standard 5: The level of therapist training
Potential Standards
Standard 6: Manualized, replicable, and specific treatment
Standard 7: Treatment adherence

Note. Adapted from “A systematic research synthesis of EMDR studies: Implementation of the Platinum Standard,” by K. M. Hertlein and R. J. Ricci, 2004, *Trauma, Violence, & Abuse*, 5(3), pp. 288-289. Copyright 2004 by Sage Publications. Adapted with permission.

Future Directions

The results of this study suggest that more effectiveness studies of EBTs, including EMDR, involving early intervention and long-term follow-up, would benefit VA and DOD clinicians by providing comparative information to assist in the selection of appropriate treatment. The VA and DOD (2010) guidelines concluded that early intervention is critical to prevent long-term disability, and the substantial occupational risks and long-term costs for veterans have been established (Russell et al., 2007). Similarly, Tanielian et al. (2008) found that active military personnel and veterans reported PTSD, depression, and anxiety symptoms interfered with their ability to transition back from combat situations. This pilot study represents a potential model for assessing the effectiveness of EBTs as used in community settings; however, due to the

lack of long-term follow-up data, it does not serve to demonstrate the long-term effectiveness of EBTs in treating trauma as recommended by the IOM (2012) and Tanielian et al. (2008). Furthermore, without consistent or agreed upon outcome measures throughout effectiveness research, it is unclear how clinicians can compare studies or ascertain the effectiveness of EBTs (IOM, 2012). Similarly, discussion of the inclusionary and exclusionary criteria inherent to different therapeutic modalities may benefit clinicians in assessing the appropriateness of different EBTs with various populations.

As a result, it is recommended that future research should be conducted on the long-term effectiveness of EBTs in the treatment of trauma with military populations. Long-term effectiveness research studies should include detailed follow-up of military personnel, particularly with individuals who exhibited combat-related PTSD. This population may encounter different adjustment issues that may be more intense or complicated as a result of their usually multiple and complex war traumas. Given the results of this study, as well as others, it is in the interest of the DOD to formally facilitate or conduct related research.

References

- Albright, D. L., & Thyer, B. (2010). Does EMDR reduce post-traumatic stress disorder symptomatology in combat veterans? *Behavioral Interventions, 25*(1), 1-19
- Alvarez, J., McLean, C., Harris, A. H., Rosen, C. S., Ruzek, J. I., & Kimerling, R. (2011). The comparative effectiveness of cognitive processing therapy for male veterans treated in a VHA posttraumatic stress disorder residential rehabilitation program. *Journal of Consulting and Clinical Psychology, 79*(5), 590-9.
- American Psychiatric Association. (2004). *Practice guideline for the treatment of patients with acute stress disorder and posttraumatic stress disorder*. Washington, DC: American Psychiatric Association.
- American Psychiatric Association. (2014). *Online assessment measures*. Retrieved from <http://www.psychiatry.org/practice/dsm/dsm5/online-assessment-measures>
- American Psychological Association Task Force on Psychological Intervention Guidelines. (1995). *Template for developing guidelines: Interventions/or mental disorders and psychological aspects of physical disorders*. Washington, DC: American Psychological Association.
- Barlow, D. H. (1996). Health care policy, psychotherapy research, and the future of psychotherapy. *American Psychologist, 51*(10), 1050-1058.
- Beck, A. T., Epstein, N., Brown, G., & Steer, R. A. (1988). An inventory for measuring clinical anxiety: Psychometric properties. *Journal of Consulting and Clinical Psychology, 56*(6), 893-7.
- Beck, A. T., Steer, R. A., Ball, R., & Ranieri, W. (1996). Comparison of Beck Depression Inventories -IA and -II in psychiatric outpatients. *Journal of Personality Assessment, 67*(3), 588-97.
- Bisson, J. I., Ehlers, A., Matthews, R., Pilling, S., Richards, D., & Turner, S. (2007). Psychological treatments for chronic post-traumatic stress disorder. Systematic review and meta-analysis. *The British Journal of Psychiatry: The Journal of Mental Science, 190*, 97-104.
- Bradley, R., Greene, J., Russ, E., Dutra, L., & Westen, D. (2005). A multidimensional meta-analysis of psychotherapy for PTSD. *The American Journal of Psychiatry, 162*(2), 214-27.
- Carlson, J. G., Chemtob, C. M., Rusnack, K., Hedlund, N. L., & Muraoka, M. Y. (1998). Eye movement desensitization and reprocessing for combat-related posttraumatic stress disorder. *Journal of Traumatic Stress, 11*, 3-24.

- Castillo, D., Lacefield, K., Baca, J. C., Blankenship, A., & Qualls, C. (2014). Effectiveness of group-delivered cognitive therapy and treatment length in women veterans with PTSD. *Behavioral Sciences, 4*(1), 31-41.
- Centre for Evidence-Based Medicine Oxford. (2009). *Levels of evidence*. Retrieved from <http://www.cebm.net/?o=1025>
- Chambless, D. L., & Hollon, S. D. (1998). Defining empirically supported therapies. *Journal of Consulting and Clinical Psychology, 66*, 1, 7-18.
- Chard, K. M., Schumm, J. A., Owens, G. P., & Cottingham, S. M. (2010). A comparison of OEF and OIF veterans and Vietnam veterans receiving cognitive processing therapy. *Journal of Traumatic Stress, 23*(1), 25-32.
- Cigrang, J. A., Rauch, S. A. M., Avila, L. L., Bryan, C. J., Goodie, J. L., Hryshko-Mullen, A., Peterson, A. L. (2011). Treatment of active-duty military with PTSD in primary care: Early findings. *Psychological Services, 8*(2), 104-113.
- Congressional Budget Office. (2012). *The veterans health administration's treatment of PTSD and traumatic brain injury among recent combat veterans*. Washington, DC. Retrieved from <http://www.cbo.gov/sites/default/files/cbofiles/attachments/02-09-PTSD.pdf>
- De Maat, S., Dekker, J., Schoevers, R., & Jonghe, F. (2007). The effectiveness of long-term psychotherapy: Methodological research issues. *Psychotherapy Research, 17*(1), 59-65.
- Department of Veterans' Affairs & Department of Defense. (2004). *VA/DOD clinical practice guideline for the management of post-traumatic stress* (Office of Quality and Performance publication 10Q-CPG/PTSD-04). Washington, DC: Veterans Health Administration, Department of Veterans Affairs and Health Affairs, Department of Defense.
- Department of Veterans' Affairs & Department of Defense. (2010). *VA/ Department of Defense clinical practice guideline for the management of post-traumatic stress* (Office of Quality and Performance publication 10Q-Clinical Practice Guidelines/PTSD-04). Washington, DC: Veterans Health Administration, Department of Veterans Affairs and Health Affairs, Department of Defense.
- Dickstein, B. D., Walter, K. H., Schumm, J. A., & Chard, K. M. (2013). Comparing response to cognitive processing therapy in military veterans with subthreshold and threshold posttraumatic stress disorder. *Journal of Traumatic Stress, 26*(6), 703-709.
- Foa, E. B., & Meadows, E. A. (1997). Psychosocial treatments for posttraumatic stress

- disorder: A critical review. *Annual Review of Psychology*, 48, 449-480.
- Foa, E. B., Keane, T. M., & Friedman, M. J. (2000). Guidelines for treatment of PTSD. *Journal of Traumatic Stress*, 13(4), 539-588.
- Gaffan, E. A., Tsaousis, I., & Kemp-Wheeler, S. M. (1995). Researcher allegiance and meta-analysis: The case of cognitive therapy for depression. *Journal of Consulting and Clinical Psychology*, 63, 966-980.
- Goodson, J. T., Lefkowitz, C. M., Helstrom, A. W., & Gawrysiak, M. J. (2013). Outcomes of prolonged exposure therapy for veterans with posttraumatic stress disorder. *Journal of Traumatic Stress*, 26(4), 419-425.
- Hertlein, K. M., & Ricci, R. J. (2004). A systematic research synthesis of EMDR studies: Implementation of the platinum standard. *Trauma, Violence, & Abuse*, 5(3), 285-300.
- Hoagwood, K., Hibbs, E., Brent, D., & Jensen, P. (1995). Introduction to the special section: Efficacy and effectiveness in studies of child and adolescent psychotherapy. *Journal of Consulting and Clinical Psychology*, 63(5), 683-687.
- Institute of Medicine. (2008). *Treatment of posttraumatic stress disorder: An assessment of the evidence*. Washington, DC: National Academies Press.
- Institute of Medicine. (2012). *Treatment for posttraumatic stress disorder in military and veteran populations: Initial assessment*. Washington, DC: National Academies Press.
- Jensen, J. A. (1994). An investigation of eye movement desensitization and reprocessing (EMD/R) as a treatment for posttraumatic stress disorder (PTSD) symptoms of Vietnam combat veterans. *Behavior Therapy*, 25(2), 311-325.
- Kaysen, D., Bedard-Gilligan, M., Schumm, J., Seim, R. W., Chard, K., & Pedersen, E. R. (2014). Cognitive Processing Therapy for veterans with comorbid PTSD and alcohol use disorders. *Addictive Behaviors*, 39(2), 420-427.
- Kazdin, A. E. (2008). Evidence-based treatment and practice: New opportunities to bridge clinical research and practice, enhance the knowledge base, and improve patient care. *The American Psychologist*, 63(3), 146-59.
- Kazdin, A. E. (2011). Evidence-based treatment research: Advances, limitations, and next steps. *The American Psychologist*, 66(8), 685-98.
- Kulka, R. A., Schlenger, W. E., Fairbank, J. A., Hough, R. L., Jordan, B. K., Marmar, C. R., & Weiss, D. S. (1990). *Trauma and the Vietnam War generation: Report of findings from the National Vietnam Veterans Readjustment Study*. New York, NY: Brunner/Mazel.

- Lee, C., Gavriel, H., Drummond, P., Richards, J., & Greenwald, R. (2002). Treatment of PTSD: Stress inoculation training with prolonged exposure compared to EMDR. *Journal of Clinical Psychology, 58*, 1071-1089.
- Lee, C. W. & Schubert, S. (2009). Omissions and errors in the Institute of Medicine's report on scientific evidence of treatment for posttraumatic stress disorder. *Journal of EMDR Practice and Research, 3*(1), 32-38.
- Luborsky, L., Diguier, L., Seligman, D. A., Rosenthal, R., Krause, E. D., Johnson, S., Halperin, G., Bishop, M., Berman, J. S., & Schweizer, E. (1999). The researcher's own therapy allegiances: A "wild card" in comparisons of treatment efficacy. *Clinical Psychology: Science and Practice, 6*, 95-106.
- Luborsky, L., Rosenthal, R., Diguier, L., Andrusyna, T. P., Berman, J. S., Levitt, J. T., Seligman, D. A., & Krause, E. D. (2002). The dodo bird verdict is alive and well—mostly. *Clinical Psychology: Science and Practice, 9*, 2-12.
- Luborsky, L., Singer, B., & Luborsky, L. (1975). Comparative studies of psychotherapies. Is it true that "everyone has won and all must have prizes"? *Archives of General Psychiatry, 32*, 995-1008.
- Macdonald, A., Monson, C. M., Doron-Lamarca, S., Resick, P. A., & Palfai, T. P. (2011). Identifying patterns of symptom change during a randomized controlled trial of cognitive processing therapy for military-related posttraumatic stress disorder. *Journal of Traumatic Stress, 24*(3), 268-76.
- Maxfield, L., & Hyer, L. (2002). The relationship between efficacy and methodology in studies investigating EMDR treatment of PTSD. *Journal of Clinical Psychology, 58*(1), 23-41.
- McKibben, E. S., Britt, T. W., Hoge, C. W., & Castro, C. A. (2009). Receipt and rated adequacy of stress management training is related to PTSD and other outcomes among Operation Iraqi Freedom veterans. *Military Psychology, 21*, 68-81.
- McLay, R. N., McBrien, C., Wiederhold, M. D., & Wiederhold, B. K. (2010). Exposure therapy with and without virtual reality to treat PTSD while in the combat theater: A parallel case series. *Cyberpsychology, Behavior & Social Networking, 13*(1), 37-42.
- Munder, T., Brutsch, O., Leonhart, R., Gerger, H., & Barth, J. (2013). Researcher allegiance in psychotherapy outcome research: An overview of reviews. *Clinical Psychology Review, 33*(4), 501-511.
- Pallant, J. (2007). *SPSS survival manual: A step by step guide to data analysis using SPSS*. Maidenhead, England: Open University Press.

- Price, M., Gros, D. F., Strachan, M., Ruggiero, K. J., & Acierno, R. (2013). Combat experiences, pre-deployment training, and outcome of exposure therapy for post-traumatic stress disorder in Operation Enduring Freedom/Operation Iraqi Freedom Veterans. *Clinical Psychology & Psychotherapy*, 20(4), 277-285.
- Rauch, S. A. M., Defever, E., Favorite, T., Duroe, A., Garrity, C., Martis, B., & Liberzon, I. (2009). Prolonged exposure for PTSD in a Veterans Health Administration PTSD clinic. *Journal of Traumatic Stress*, 22(1), 60-64.
- Reger, G. M., Holloway, K. M., Candy, C., Rothbaum, B. O., Difede, J., Rizzo, A. A., & Gahm, G. A. (2011). Effectiveness of virtual reality exposure therapy for active duty soldiers in a military mental health clinic. *Journal of Traumatic Stress*, 24(1), 93-6.
- Robinson, L. A., Berman, J. S., & Neimeyer, R. A. (1990). Psychotherapy for the treatment of depression: A comprehensive review of controlled outcome research. *Psychological Bulletin*, 108, 30-49.
- Rothbaum, B. O., Astin, M. C., & Marsteller, F. (2005). Prolonged exposure versus eye movement desensitization (EMDR) for PTSD rape victims. *Journal of Traumatic Stress*, 18, 607-616.
- Russell, M. C. (2006). Treating combat-related stress disorders: A multiple case study utilizing eye movement desensitization and reprocessing (EMDR) with battlefield casualties from the Iraqi War. *Military Psychology*, 18(1) 1-18.
- Russell, M. C. (2008a). Treating traumatic amputation-related phantom limb pain. *Clinical Case Studies*, 7(2), 136-153.
- Russell, M. C. (2008b). Scientific resistance to research, training and utilization of eye movement desensitization and reprocessing (EMDR) therapy in treating post-war disorders. *Social Science & Medicine*, 67(11), 1737-1746.
- Russell, M. C., & Silver, S. (2006). *Training needs for the treatment of combat-related post-traumatic stress disorder: A survey of Department of Defense clinicians*. Unpublished manuscript.
- Russell, M. C., Silver, S, Rogers, S, & Darnell, J. (2007). Responding to an identified need: A joint DOD-VA training program for clinicians treating trauma survivors. *International Journal of Stress Management*, 14(1) 61-71.
- Sayer, N. A., Carlson, K. F., & Frazier, P. A. (2014). Reintegration challenges in U.S. service members and veterans following combat deployment. *Social Issues and Policy Review*, 8(1), 33-73.

- Seligman, M. E. P. (1995). The effectiveness of psychotherapy. *American Psychologist*, *50*(12), 965-974.
- Shapiro, F. (2001). *Eye movement desensitization and reprocessing: Basic principles, protocols, and procedures* (2nd ed.). New York, NY: Guilford Press.
- Shinsheki, E. (2010). *Department of Defense/VA Suicide Prevention Conference: Building strong and resilient communities*. Washington, DC. Retrieved from http://www1.va.gov/opa/speeches/2010/10_0111hold.asp
- Silver, S. M., Rogers, S., & Russell, M. (2008). Eye movement desensitization and reprocessing (EMDR) in the treatment of war veterans. *Journal of Clinical Psychology*, *64*(8), 947-957.
- Smith, G. R. J., Fischer, E. P., Nordquist, C. R., Mosley, C. L., & Ledbetter, N. S. (1997). Implementing outcomes management systems in mental health settings. *Psychiatric Services*, *48*(3), 364-8.
- Spates, R.C., Koch, E., Cusack, K. Patago, S., & Waller, S. (2009). Eye movement desensitization and reprocessing. In E. B. Foa, T. M. Keane, & M. J. Friedman (Eds.), *Effective treatments for PTSD: Practice guidelines from the International Society for Traumatic Stress Studies* (2nd ed.) (pp. 279-305). New York, NY: Guilford Press.
- Strachan, M., Gros, D. F., Ruggiero, K. J., Lejuez, C. W., & Acierno, R. (2012). An integrated approach to delivering exposure-based treatment for symptoms of PTSD and depression in OIF/OEF veterans: Preliminary findings. *Behavior Therapy*, *43*(3), 560-569.
- Surís, A., Link-Malcolm, J., Chard, K., Ahn, C., & North, C. (2013). A randomized clinical trial of cognitive processing therapy for veterans with PTSD related to military sexual trauma. *Journal of Traumatic Stress*, *26*(1), 28-37.
- Tanielian, T. L., Jaycox, L., Rand Corporation., California Community Foundation., RAND Health., & Rand Corporation. (2008). *Invisible wounds of war: Psychological and cognitive injuries, their consequences, and services to assist recovery*. Santa Monica, CA: RAND Center, for Military Health Policy Research.
- Thyer, B. A., Papsdorf, J. D., Davis, R., & Vallecorsa, S. (1984). Autonomic correlates on the subjective anxiety scale. *Journal of Behavior Therapy & Experimental Psychiatry*, *15*, 3-7.
- Tuerk, P. W., Yoder, M., Ruggiero, K. J., Gros, D. F., & Acierno, R. (2010). A pilot study of prolonged exposure therapy for posttraumatic stress disorder delivered via telehealth technology. *Journal of Traumatic Stress*, *23*(1), 116-23.

- U.S. Department of Veterans Affairs. (2012). *Veterans benefits administration annual benefits report fiscal year 2011*. Washington, DC. Retrieved from http://www.vba.va.gov/REPORTS/abr/2011_abr.pdf
- van der Kolk, B. A., Spinazzola, J., Blaustein, M. E., Hopper, J. W., Hopper, E. K., Korn, D. L., & Simpson, W. B. (2007). A randomized clinical trial of eye movement desensitization and reprocessing (EMDR), fluoxetine, and pill placebo in the treatment of posttraumatic stress disorder: Treatment effects and long-term maintenance. *The Journal of Clinical Psychiatry*, *68*(1), 37-46.
- Van Etten, M. L., & Taylor, S. (1998). Comparative efficacy of treatments for post-traumatic stress disorder: A meta-analysis. *Clinical Psychology & Psychotherapy*, *5*(3), 126-144.
- Weathers, F. W., Litz, B. T., Herman, D. S., Huska, J. A., & Keane, T. M. (1993). *The PTSD Checklist (PCL): Reliability, validity, and diagnostic utility*. Paper presented at the 9th Annual Conference of the ISTSS, San Antonio, TX.
- Wilkins, K. C., Lang, A. J., & Norman, S. B. (2011). Synthesis of the psychometric properties of the PTSD checklist (PCL) military, civilian, and specific versions. *Depression and Anxiety*, *28*(7), 596-606.
- Wolpe, J. (1982). *The practice of behavior therapy*. New York, NY: Pergamon Press.
- Yoder, M., Tuerk, P. W., Price, M., Grubaugh, A. L., Strachan, M., Myrick, H., & Acierno, R. (2012). Prolonged exposure therapy for combat-related posttraumatic stress disorder: Comparing outcomes for veterans of different wars. *Psychological Services*, *9*(1), 16-25.
- Zappert, L. N., & Westrup, D. (2008). Cognitive processing therapy for posttraumatic stress disorder in a residential treatment setting. *Psychotherapy*, *45*(3), 361-76.

Appendix A
Copyright Permission Letter

Permission for Table 14:




Title: A Systematic Research Synthesis of EMDR Studies:Implementation of the Platinum Standard

Author: Katherine M. Hertlein, Ronald J. Ricci

Publication: Trauma, Abuse, Violence: A Review Journal

Publisher: SAGE Publications
Copyright © 2004, SAGE Publications

Account Info Help

Logged in as:
Matt Brickell
Account #: 3000831636
LOGOUT

Order Completed

Thank you very much for your order.

This is a License Agreement between Matt Brickell ("You") and SAGE Publications ("SAGE Publications"). The license consists of your order details, the terms and conditions provided by SAGE Publications, and the [payment terms and conditions](#).

License Number	Reference confirmation email for license number
License date	Sep 09, 2014
Licensed content publisher	SAGE Publications
Licensed content publication	Trauma, Abuse, Violence: A Review Journal
Licensed content title	A Systematic Research Synthesis of EMDR Studies:Implementation of the Platinum Standard
Licensed content author	Katherine M. Hertlein, Ronald J. Ricci
Licensed content date	07/01/2004
Volume number	5
Issue number	3
Pages	16
Type of Use	Other
Requestor type	Non-commercial
Format	Print and electronic
Portion	Figure/table
Number of figures/tables	2
Author of this SAGE article	No
How material will be used	For my dissertation, I would like to modify/adapt table 1 and 2 from this article when proposing new and potential standards.
Total	0.00 USD

[ORDER MORE...](#)

[CLOSE WINDOW](#)

Copyright © 2014 Copyright Clearance Center, Inc. All Rights Reserved. [Privacy statement](#).
Comments? We would like to hear from you. E-mail us at customer@copyright.com