PTSD AND DEPRESSION IN MILITARY MEMBERS AND RECOMMENDATIONS
FOR PROGRAM EVALUATION OF EVIDENCE-BASED TREATMENT

by

Heidi A McGuigan

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As members of the Practice Inquiry Project Committee, we certify that we have read the scholarly inquiry project report prepared by Heidi A McGuigan entitled “PTSD and Depression in Military Members and Recommendations for Program Evaluation of Evidence-based Treatment” and recommend that it be accepted as fulfilling the scholarly inquiry project requirement for the Degree of Doctor of Nursing Practice

Cathy L Michaels, PhD, RN, FAAN
Clinical Associate Professor

Date: April 9, 2013

Kate G Sheppard, PhD, RN, FNP, PMHNP-BC, FAANP
Clinical Assistant Professor

Date: April 9, 2013

Kathy Kay Prue-Owens, PhD, RN, COL
Army Nurse Corps

Date: April 9, 2013

Final approval and acceptance of this scholarly inquiry project is contingent upon the candidate's submission of the final copies of the scholarly inquiry project report to the Graduate College.

I hereby certify that I have read this scholarly inquiry project prepared under my direction and recommend that it be accepted as fulfilling the scholarly inquiry project requirement.

Scholarly Inquiry Project Director: Cathy L Michaels, PhD, RN, FAAN
Clinical Associate Professor
STATEMENT BY AUTHOR

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SIGNED: Heidi A McGuigan
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DEDICATION

TO THE MEN AND WOMEN WHO DEFEND OUR FREEDOM

This practice inquiry is dedicated to the honorable men and women serving the United States of America as defenders of freedom and the American way of life. It is these brave souls that we send into fields of combat to defend us against attacks of terror, violations to our sovereign nation and to protect the basic rights of all human beings. It is these brave souls that are impacted most greatly by the realities of war and require our best and most compassionate nursing care.
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ABSTRACT

A critical review of evidence-based literature addressing screening, barriers to treatment, treatment modalities and programs of care for posttraumatic stress disorder and depression in active duty military members was conducted using the Galvan method. The ONS levels of evidence and the ONS weight of evidence scale were used to critique and analyze extant research. Programs of care and their evaluation were reviewed. Gaps in research were identified and suggestions for evidence-based treatment and program evaluation of evidence-based treatment of PTSD and depression in military members are proposed.
CHAPTER ONE: INTRODUCTION

The purpose of this practice inquiry is to conduct a critical review, synthesis and analysis of the literature regarding treatments, treatment programs and models of care for post-traumatic stress disorder (PTSD) and depression in military members, as well as to make recommendations for program evaluation of evidence-based treatments. During the past decade the operational tempo of conflict in Iraq and Afghanistan has placed a great stress on military forces. Over 1.5 million soldiers have deployed to the conflicts in Iraq or Afghanistan in support of military operations (Hoge, Castro, Messer, McGurk, Cotting, & Koffman, 2008). Psychological wounds of war are often some of the most difficult to detect and to heal. It is estimated that up to 30% of soldiers returning from the conflicts in Iraq and Afghanistan have either PTSD or depression, yet stigma and concerns for military care serve as barriers to treatment (Hoge et al., 2008; Weiland, Hursey, & Delgado, 2010). With current treatment programs failing to stem the rising tide of suicide within the military, it is necessary to reexamine the evidence-base upon which current recommendations are made (Clifton, 2012). The Institute of Medicine (Frieden, 2012) states that military programs are not reaching all that need help and not keeping track of which programs are being used nor evaluating the effectiveness of these programs. It is because of the need for evidence-based treatments and effective treatment programs to guide care delivered by advanced practice nurses and other health professionals that this practice inquiry is both timely and essential.

Several treatment programs are operating to attempt to meet the mental health needs of active duty personnel by improving resilience, early detection of problems and evidence-based treatment of mental health impairment (Bowles & Bates, 2010). Although many programs are operational, there are significant gaps in evaluation and measurement of program effectiveness.
Program evaluation conducted in a systematic method that includes measures of the effectiveness of interventions will assist decision makers to allocate resources wisely and support programs with proven efficacy in prevention, detection and treatment. Comprehensive program evaluations that address the continuum of prevention, detection and treatment of mental health problems among interprofessional, inter-service patient centered care are necessary to meet the needs of the members of the Department of Defense (DOD). An example of a collaborative care based program in the Army for detection and primary care treatment of PTSD and/or depression is RESPECT-mil.

Implementation of a program is only a step in production of a model for care that assures quality in patient care delivery. It is necessary to evaluate the program in order to determine if delivery of the program is affecting positive change in healthcare outcomes. Program evaluation is a tool to assess the fidelity, processes, barriers and outcomes of a program and is used to promote quality and safety in program delivery. Program evaluation is a systematic evaluation of the objectives, goals, components, processes and outcomes of a program based on individual, group and organizational stakeholder’s interest in program effectiveness. Systematically gathering data and answering questions about a program provides the ability to determine if the program is implemented as intended and how outcomes are related to safety and quality (McDavid & Hawthorn, 2006).

According to the Institute of Medicine report, Crossing the Quality Chasm (2001), the nation’s health care system is in need of an overhaul. Quality and safety of health care must be improved and the process must assure safe, effective, patient-centered, timely, efficient and equitable health care (IOM, 2001). To accomplish these goals, health care systems must be re-engineered with increased used of health information technology, improved knowledge for
evidence-based practice and skills management, effective team development and coordination of care across services, sites of care and time (IOM, 2001). Since 2001, emphasis is increasingly placed on the digital information infrastructure, emerging genetic insights and health literacy (IOM, 2012). Comparative effectiveness research is starting the process of comparing various treatment methods to ascertain which treatments provide the best value driven health care. A systematic approach to evidence development and evaluation is needed to drive innovative programs of health care quality (IOM, 2012). Patient-centered care provided by collaborative ready inter-disciplinary and inter-professional teams will improve the quality, safety and cost-effectiveness of care.

**Background**

The soldier’s mindset, motivation and attitude are unique and important to understand. Most soldiers, more than 90%, are under the age of 40 whereas National Guard and Reserves have much greater numbers of over 40 soldiers (Polusny, Erbes, Murdoch, Arbisi, Thuras, & Rath, 2011). Most active duty soldiers are married and nearly half have children (Matthews, 2009). As rated by soldiers deployed in Afghanistan and Iraq, the personal characteristics most helpful in coping with the most challenging situations during deployment are teamwork, honesty, courage, persistence and judgment (Matthews, 2009). Military values, including collectivism, hierarchical orientation, strong sense of history, and core values of service, are instilled actively into soldiers and shape military culture (Christian, Stivers, & Sammons, 2009). These values represent a core set of values that is actively introduced and indoctrinated but not equally adopted by all soldiers (Christian, Stivers, & Sammons, 2009).
Risk Factors for Development of PTSD and Depression

Internal variables and external variables affect risk of developing either depression or PTSD. Genetic factors, environment, and prior history combine to influence the likelihood of developing these problems and are difficult to separate. Not all soldiers who experience the stressors involved in military deployments develop a disorder. A number of individual factors may influence susceptibility to onset of depression or PTSD. Age, race, gender, education, socioeconomic status and intelligence are found to influence risk of developing PTSD (Kelly & Vogt, 2009). Adverse childhood experiences and repeated exposures to trauma increase susceptibility to depression and PTSD. Characteristics that promote resilience include social support, positive appraisals, problem-focused strategies and hardness (Kelly & Vogt, 2009).

Unique risks for development of PTSD and depression related to deployment. Military members serve in a variety of capacities and undergo stressors in preparation for deployment as well as during deployment. The most obvious stressor is that of combat. Exposure to combat is common with more than 93% of Army soldiers reporting being shot at and 95% report seeing severe injury or death (Reger & Moore, 2009). In preparation for deployment, soldiers experience high training tempos and often find it hard to stay connected emotionally with loved ones in anticipation of separation. Facing the idea of one’s mortality is one of the biggest stressors, yet in coming face to face with the possibility of death, especially at the age of most military members, the soldier is better prepared for deployment. Knowing ones loved ones are safe at home and will be taken care of if they were unable to return home, provides the soldier the psychological freedom to let go of worry about their loved ones and focus on the mission at hand (Reger & Moore, 2009).
During deployment, environmental discomforts and physiological challenges, such as lack of sleep, and cognitive challenges, such as making difficult decisions with limited information, challenge the ability to successfully cope (Reger & Moore, 2009). Some of the most difficult stressors occurring during deployment are emotional. These may include loss of a friend, colleague or a relationship with a significant other at home. Infidelity, feared or real and financial issues are further stressors that affect resilience of deployed soldiers.

War is capable of creating psychological trauma that can lead to depression, PTSD, sleep disturbances and other psychological disruptions that affect our fighting forces potentially leading to a weakening of our Nation’s defense. The warrior is the most important asset to the military service.

**Incidence of behavioral health disorders.** Behavioral health disorders are common among military troops that have returned from war zones. United States (U.S.). Combat troops returning from the conflict in Iraq have indicated affliction with mental health disorders including depression and PTSD (Gahm, Lucenko, Retzlaff, & Fukuda, 2007; Hoge, Auchterloine, & Milliken, 2006; Hoge et al., 2004). Most soldiers return from war without psychological symptoms of PTSD or depression (Hoge et al., 2004). However, PTSD is estimated to occur in 4-25% of returning veterans from Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF), and depression is a common co-morbidity (Campbell, Felker, Liu, Yano, Kirchner, Chan, Rubenstein, & Chaney, 2007; Chan, 2008; Hoge, 2011; Richardson, Frueh, & Acierno, 2010; Thomas, Wilk, Riviere, McGurk, Casatro, & Hoge, 2010). Depression occurs in 11.5-16% of soldiers in deployed National Guard and Active components (Thomas et al., 2010).
Estimates of PTSD incidence vary from study to study and depend on how PTSD is measured, exposure to combat, social support and presence of traumatic brain injury. Estimates range from 16 to 36% of returning veterans (Baker & Hepner, 2009; Brown & Weisler, 2011; Dietrich et al., 2004; Engel, Oxman, Yamamoto, Gould, Barry, Stewart, Kroenke, Williams, & Dietrich, 2008; Gahm & Lucenko, 2008; Hoge et al., 2006; Hoge et al., 2004; Kilgore, Stetz, Castro, & Hoge, 2006; Lapierre, Schwegler, & LaBauve, 2007). The Veterans Administration treated 100,000 (approximately 10% of deployed soldiers) of Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) veterans for PTSD between 2002 and 2008 (ACS, 2002; Carlson, Kehle, Meis, Greer, Macdonald, Rutks, Sayer, & Dobscha, 2011).

The stress of repeated deployments over time increases risk of PTSD in men and women (Gahm, Lucenko, Retzlaff, & Fukuda, 2007; Vogt, Smith, Elwy, Martin, Schultz, Drainoni, & Eisen, 2011). Depression occurred in 11.5-16% of 18,305 National Guard and Active component soldiers returning from the wars in Iraq and Afghanistan at three to six months after returning (Thomas et al., 2010). Overlap between PTSD and depression is frequent with 36% of depressed patients also meeting criteria for PTSD (Campbell et al., 2007). Those with both depression and PTSD have higher depression severity, lower social support, increased outpatient visits to primary care and increased suicidal ideation than depression alone (Campbell et al., 2007).

**Traumatic brain injury and PTSD.** Over 1.5 million soldiers have deployed to OIF and OEF since 2001 (Hoge et al., 2008). Of these, 4.9% have experienced traumatic brain injury (TBI) with loss of consciousness (LOC), and another 10% have TBI without LOC (Hoge et al., 2008). PTSD is present in 49% of those who experienced TBI with LOC and 27% of those without LOC (Baker, Heppner, Afari, Nunnink, Kilmer, Simmons, Harder, & Bosse, 2009; Carlson et al., 2011; Hoge et al., 2008). Scores on standard measures of depression and PTSD
are higher in those with LOC than those without LOC. Wilke, Herrell, Wynn, Riviere and Hoge (2012) studied 4758 soldiers from three brigade combat teams post deployment with co-morbid PTSD and TBI finding that the only symptoms that differentiated TBI from PTSD were problems with balance, headache and memory. All other symptoms attributed to TBI were explained by PTSD. Co-morbid PTSD and TBI are more difficult to treat than PTSD alone (Brenner, Betthauser, Homadifar, Villareal, Harwood, Staves, & Huggins, 2011; Peterson, Luethcke, Borah, Borah, & Young-McCaughan, 2011). TBI as a comorbid factor complicates treatment of PTSD.

**Diagnosis of PTSD and depression.** Diagnosis of PTSD, according to the Diagnostic and Statistical Manual of the American Psychiatric Association includes an exposure to a traumatic event that involved actual or threatened death and evoked intense fear, helplessness or horror and intrusive memories, avoidant behaviors and hyper-arousal symptoms that last more than one month and result in functional impairment (American Psychiatric Association [APA], 2000). However, military members are expected to undergo exposure to traumatic events in deployment and may not acknowledge exposure to an event that caused horror or evoked intense fear. This may impair detection and diagnosis of PTSD. Diagnosis of PTSD is likely to change when the new Diagnostic and Statistical Manual (DSM) V is released. Major depression is diagnosed with more than two weeks of either depressed mood or loss of interest or pleasure along with weight change, sleep disturbance (insomnia or hypersomnia), fatigue and psychomotor agitation or retardation that affects functional status (APA, 2000).

**Effect of depression and PTSD on functional status.** PTSD and depression affect quality of life and carry a high burden of illness. PTSD and depression are associated with lower quality of life, impaired mental and interpersonal functioning, time management and work output.
in veterans of OIF and OEF (Adler, Bliese, McGurk, Hoge, & Castro, 2011; Pittman, Goldsmith, Lemmer, Kilmer, & Baker, 2012). Depression and PTSD affect family integrity and family functioning (Schnurr, Lunney, Bovin, & Marx, 2009). Depression is costly to patients and employers with more job loss, work absence, on-the-job limitations, premature retirement and disability (Adler et al., 2011; Wells, Miller, Adler, Engel, Smith, & Fairbank, 2011). The loss of productivity in OIF and OEF veterans is four times that of those with similar illnesses that are not veterans (Adler et al., 2011; Wells et al., 2011). Increased utilization of services for provision of mental health care impacts this population although only 50% or less of those who needed care received it in the year following deployment (Hoge, 2011; Hoge et al., 2006). Depression with PTSD incurs higher utilization of all outpatient visits and higher utilization of mental health visits with increased costs of care provision and medications than depression alone or no depression or PTSD (Brancu, Straits-Troster, & Kudler, 2011; Chan, Cheadle, Reiber, Unutzer, & Chaney, 2009). Comorbid depression with medical illness doubles the cost of medical care (Katon, Unutzer, Wells, & Jones, 2010; Marmar, 2009).

Range of Treatment Methods for Depression and PTSD

Cognitive-Behavioral Therapy

The process of cognitive-behavioral therapy begins with assessment of the patient. Data gathered from medical records, psychological testing and personal interview direct the formulation of hypothesis by the therapist. Initial impressions are revised as the process of therapy ensues. Newman and Beck (1990) describe eight steps in cognitive-behavioral therapy that must occur: (1) conceptualization of the problem, (2) collaborative relationship with the patient, (3) motivation, (4) patient formulation of problem, (5) setting goals, (6) patients socialization into cognitive model, (7) cognitive behavioral interventions and (8) relapse
prevention (Freeman & Moore, 2009). Cognitive-behavioral therapy is used in a time limited active and collaborative manner that is goal-directed and focused on the present (Freeman & Moore, 2009). Not all cognitive behavioral therapeutics are administered uniformly.

**Exposure Therapy**

Exposure therapy is a subcategory of CBT for PTSD that involves repeated recall of stressful memories accompanied by relaxation and anxiety management (Riggs, 2009). Prolonged exposure therapy includes exercises in both recall of actual events and exposure to imaginary events that are stress-producing. Prolonged exposure therapy demonstrates effectiveness in treatment of PTSD and depression (Riggs, 2009).

**Anxiety Management**

Anxiety management with modified stress inoculation training includes active methods to reduce anxiety and promote relaxation. These methods include breath training, yoga, guided imagery, role playing and thought stopping (Riggs, 2009). Programs that emphasize anxiety management and effectiveness integrate many relaxation methods. Evidence suggests a positive effect on anxiety and PTSD, although weaker than prolonged exposure therapy (Riggs, 2009). CBT often incorporates these methods into treatment protocols.

**Pharmacological Therapy**

Pharmacological therapy plays an important role in both depression and anxiety. Antidepressants improve the chemical balance in the serotonin, norepinephrine and dopamine pathways in the brain leading to improved mood. Most of the research involving pharmacological treatment for PTSD is centered on systematic serotonin reuptake inhibitors (SSRI’s) including paroxetine and sertraline. SSRI’s are first line treatment. Research suggests improvement in PTSD symptoms using these SSRI’s but evidence is limited (Peterson et al.,
All therapies take time to work and require adherence to a treatment plan. Antidepressants used for treatment of depression include SSRI’s, serotonin-norepinephrine reuptake inhibitors (SNRI’s) (venlafaxine and bupropion), tricyclics, and atypical antidepressants, such as mirtazapine. The DOD has clinical practice guidelines for both depression and PTSD (The Management of Major Depressive Disorder Working Group, 2009; The Management of Post-traumatic Stress Working Group, 2010).

Detection of Mental Health Problems and Barriers to Treatment

Only 50% of those who have symptoms seek care upon redeployment from theater (Hoge, 2011; Tanielian & Jaycox, 2008). The stigma of seeking mental health care contributes greatly to the gap between the need for care and seeking treatment. Lack of cultural sensitivity to the unique cultural elements of professional military service in war creates dissatisfaction with care provided (Hoge, 2011).

Soldiers with depression or PTSD present more often with somatic complaints rather than psychological complaints. The reasons for this are multifactorial and include stigma, concerns for career implications, avoidance of recall of traumatic events, mistrust of behavioral health and thinking less of those who seek help (Hoge, 2011). Up to 70% of the time, soldiers with mental health issues present to the primary care provider with physical rather than behavioral health concerns (Katon & Guico-Pabia, 2011). Often, the first criteria for PTSD, witnessing or participating in a significantly traumatic event, is not acknowledged by military members as they are trained to encounter these type of events.

Detection and Range of Treatment of Mental Health Problems

PTSD and depression in military members is difficult to detect. Military members may denote that they have not witnessed or participated in an event that caused horror or evoked
intense fear as these experiences are expected during warfare (Hoge, 2011). Once detected, many barriers to treatment keep the military member from seeking care, including stigma and concerns for the military career. Pharmacological and behavioral treatments currently in place have failed to stem the increasing rate of suicides amongst the military population (Clifton, 2012). Treatment programs active within the military have not been evaluated to determine effectiveness and doing so will help to improve the quality and safety of the care provided these military members.

**Models of Care and Treatment Programs of Mental Health Care**

Research provides evidence of effectiveness necessary to recommend treatment of a disease or process. As evidence accumulates and consistency is found amongst results, the foundation for a particular treatment is found to be reliable. Evidence-based practice provides the building blocks for development of treatment programs and models of health care. Treatment programs implement the processes of care within a model of care. Treatment programs consist of all of the elements that are necessary to conduct the program and the processes with which the program is implemented and evaluated. Treatment programs must be evaluated in order to know if the program is having the intended effect.

**Program Evaluation**

Two types of program evaluation are useful, a summative evaluation that is used to determine if a program has met its stated objectives and should be continued and a formative evaluation that is used to improve delivery of the program. (Wholey, Hatry, & Newcomer, 2010) Both rely on a program logic model to design, conceptualize, plan and communicate a program evaluation (Wholey et al., 2010) The logic model is a framework that represents the program and facilitates program evaluation, enabling a logical and thorough assessment of the entire program. The logic model sets forth in a logical manner the inputs into the program, including personnel,
training and funding. Next are the clusters of activity and methods of implementation, expected outcomes, linking constructs and short and long term goals of the program. Since many programs are conducted in the real world and not able to rely on randomization of participants, assessment of program effectiveness is often done in comparison with similar populations without the program or in a time-series analysis to determine if outcomes change after the successful implementation of a program as compared to similar benchmarks prior to implementation (McDavid & Hawthorne, 2006).

**Formative Evaluation**

Formative evaluation is a type of program evaluation used earlier in the process of program implementation to assess program effectiveness and provide suggestions to improve the program (McDavid & Hawthorne, 2006). Formative evaluations can be thought of as evaluation for strengthening programs and improving performance and can be contrasted with summative evaluations utilized to determine if a program is still meeting the needs it was created for (McDavid & Hawthorne, 2006). Formative evaluations are carried out in a routine manner on an ongoing basis by program directors, but structured formative evaluation provides clear focus to evaluate the fidelity and effectiveness of a program in depth providing useful information to key stakeholders (McDavid & Hawthorne, 2006). The information provided by a formative evaluation is used to determine areas of fidelity violation and outcomes of the current program processes. This information guides the stakeholders to focus on specific areas to improve fidelity and program outcomes. Fidelity to the program is the key to summative program evaluation for without fidelity, measured in a formative evaluation, measurement of outcomes cannot reliably reflect program content (McDavid & Hawthorne, 2006).
Formative program evaluations can support the organization to develop and refine a decision making process that facilitates ongoing learning. Ongoing learning makes the organization responsive to change and allows for growth of the organization while maintaining quality. An information processing framework of decision making uses logical analysis to decrease uncertainty (Morgan, 2006). Self-regulating behavior relies on negative feedback to enable the organization to know when it is deviating from the expected norm. Cybernetics requires the ability to monitor progress, relate the information from monitoring to established norms, detect significant deviations from these norms and initiate corrective actions in order for an organization to learn (Morgan, 2006). Bureaucratic organizations tend to create bounded systems promoting barriers to learning and keeping systems operating in a single-loop system (Morgan, 2006). Program evaluation can provide information that if enlightened by understanding and challenge of underlying assumptions, frameworks and norms may promote ‘double-loop’ learning and lead to a culture of continuous quality improvement that supports ongoing improvement (Morgan, 2006).

**Process of formative program evaluation.** The process of a formative program evaluation is sequential. The assessment begins with description of the program goals, objectives and stakeholder interests in evaluation. Program theory includes impact theory, service utilization plan and organizational plan (Murray & Frenk, 2008; Rossi, Lipsey, & Freeman, 2004). The impact theory explicates the change expected by implementation of the program and described by the logic model at a minimum of short and long term outcomes. The service utilization plan constitutes the plan to reach the target population, provide the services and disengage when services are no longer needed. The personnel, equipment, administration and support services used to implement the program constitute the organizational plan (Rossi et al.,
Formative program evaluation purposes are twofold: evaluation of fidelity of delivery and impact of the program in meeting program goals. Assessment of program coverage, bias, and standardization of service delivery, accessibility, operation, and conformity to program design comprise essential components of a formative program evaluation. Comparison of implementation between sites implementing the same program enlightens diversity in implementation and outcomes and may assist in standardization (Rossi et al., 2004).

**Logic Model Description**

The use of a Logic Model to provide a description of the program and the logic of its implementation guides the program evaluation. As a participating nurse practitioner in the RESPECT-mil program, I had the opportunity to gain insight into the RESPECT-mil program as it is delivered at Fort Huachuca, Arizona. Analysis of fidelity in implementation, barriers to implementation and outcomes are key elements in program evaluation. Stakeholder engagement, program description, electronic medical records, and stakeholder interview can be used to analyze program implementation, efficiency, effectiveness and barriers to implementation. Implementation of RESPECT-mil requires sequential program specific actions on the part of several stakeholders including front office staff, nurses, health care providers, case managers, and behavioral health specialists. Implementation requires electronic medical record support and training of providers. Without all of the implementation steps occurring in accordance with the program, the program cannot deliver the treatment with fidelity and outcomes are likely to suffer.

Fidelity is the degree to which the program is delivered within its guidelines and includes the behavior of multiple participants in a complex interaction. Fidelity of implementation is essential to determine if outcomes are related to the program as it is delivered. Effectiveness of the collaborative care model for depression, upon which the Respect-mil program is based,
delivery of care is significantly influenced by the implementation of the program (Gilbody, Bower, Fletcher, Richards, & Sutton, 2006). Response and remission rates vary in response to the fidelity of implementation of the collaborative care model for depression on a continuum with high fidelity of implementation achieving significantly higher rates of both response and remission (Oxman, Schulberg, Greenberg, Dietrich, Williams, Nuttig, & Bruce, 2006). Fidelity of implementation of the Respect-nil program is likely to influence outcomes.

**Models of Care**

Models of care or Care Models serve as a framework that designates an approach to the organization of patient care. Programs of care fall within the model of care and implement a program within that particular framework. Models of care provide direction for intrinsic programs and are essential to understand within the context of program evaluation.

**Usual Care**

Usual primary health care is characterized by individual management by a physician or nurse practitioner who may often miss a diagnosis of depression or PTSD. Primary care for mental illness is plagued by lack of detection, lack of follow-up and early discontinuance of treatment (Katon et al., 2010). In the absence of systematic screening, family practice physicians miss 50% of depression in their patients (Arroll, Goodyear-Smith, Crengle, Gunn, Kerse, Fishman, Falloon, & Hatcher, 2010; McMillan, Gilbody, & Richards, 2010). Once a diagnosis of depression or PTSD is made, the patient is commonly referred to psychology and/or psychiatry for management of the illness. When family practice physicians recognize depression and treat with antidepressants, up to 67% patients stop using medications within three months and only 25% of patients receive follow-up visits (O’Connor, Whitlock, Gaynes, & Beil, 2009). Lack of adherence to medication decreases recovery from depression (Yano, Chaney, Campbell, Klap,
Simon, Bonner, Lanto, & Rubenstein, 2011). For these reasons, the Veterans Administration provides routine screening for depression (Elhai, Grubaugh, Egede, & Creamer, 2008; Yano et al., 2011).

**Integrated Care Model**

Models of integrated mental health care in primary care aim toward improved communication and collaboration between specialty and primary care. Of four integrated models, education, referral, consultation and collaboration, collaboration has the greatest evidence of efficacy (Bower & Gilbody, 2005). Principles of integration are important to every model of care. Integrated care requires change in the practice culture and methods with collaboration amongst caregivers, patients, and care providers. Collaboration is important at all levels of collaborative intensity.

**Collaborative Care Model**

The collaborative care model includes collaboration between a primary care provider, a care manager and a consultant specialist. The model is used in all aspects of healthcare for management of chronic health conditions. The 3CM model, used in RESPECT-mil programs, is derived from the Macarthur Initiative on depression and primary care (Oxman, Dietrich, Williams & Kroenke, 2002). This model uses the three components of an educated primary care provider practice, nurse care facilitator and behavioral health consultation with primary care provider for provision of depression care in primary practice (Oxman et al., 2002).

**Patient Centered Medical Home Model**

The primary care medical home model requires six primary qualities to be considered a patient centered medical home (PCMH): (1) access to care, (2) use of data for population management, (3) care or case management, (4) support of self-care process, (5) referral and
follow-up tracking and (6) continuous quality improvement (NCQA, 2012). Practice-based care teams and health information technology facilitate implementation of patient centered medical home. Strong focus on patient-centeredness is currently emphasized with incorporation of behavioral health in the primary care practice. To be certified as a patient centered medical home, the practice must meet all of the six requirements and participate in the Consumer Assessment of Healthcare Providers and System (CAHPS) patient centered medical home survey developed by the Agency for Healthcare Research and Quality (AHRQ) to assess patient satisfaction (NCQA, 2011). Updated 2011 standards for PCMH emphasize culturally and linguistically appropriate care during and after hours, collection of data using information technology to facilitate population risk factors, proactive patient management and generation of patient reminders, identification of high risk patients and implementation of care management, counseling, assessing and supporting family and patient self-care measures, coordination and tracking of care and continuous quality improvement and resource utilization assessment (NCQA, 2011). Within PCMH, health care practice is evidence-based and uses clinical practice guidelines to guide practice management.

**Outcomes with care collaboration and integration.** Consistent improvement in outcomes is found with coordination and collaboration of care. In a systematic review of 37 randomized controlled trials of 12,355 patients receiving collaborative care, random effects meta-analysis showed depression outcome improved significantly at six months as compared to usual care and this improvement was sustained for up to five years (Fletcher, Bower, Gilbody, Lovell, Richards, & Gask, 2007; Gilbody et al., 2006). The improvement in outcomes for depression is directly related to medication compliance and follow-up care (Katon, 2011; Alexopolous, Reynolds, Bruce, Katz, Musiant, Oslin, & TenHave, 2009). Collaborative care
improves detection of mental health problems including depression and PTSD (Palinkas, Ell, Hansen, Cabassa, & Wells, 2011; Rubenstein, Chaney, Ober, Felker, Sherman, Lanton, & Vivell, 2010; Zivin, Pfeiffer, Szymanski, Valenstein, Post, Miller, & McCarthy, 2010). Depression and PTSD enjoyed the same benefits from collaborative care in a randomized trial of 1801 patients (Chan, Fan, & Unutzer, 2010). Patients receiving collaborative care have better outcomes for depression and PTSD and have decreased thoughts of suicide over 24 months (Alexopoulos et al., 2009). Collaborative care results in higher patient satisfaction and patient centered care (Deen, Fortney, & Pyne, 2011).

Several models of health care are currently in practice with the most common model being usual care. Outcomes found with collaborative care and patient centered medical home models show promise of improved outcomes over usual care for depression and, to some extent, PTSD. Evaluation of programs of treatment are needed to determine if programs are implemented as designed and if desired outcomes are achieved with the program. Evidence-based practices are the result of reliable and replicated research studies that provide evidence of efficacy and effectiveness of treatments. Models of healthcare provide structure that lends support for implementation of various treatment programs based on evidence-based treatments. RESPECT-mil is an example of collaborative care for mental health in primary care currently being implemented within the Army.

**RESPECT-Mil Program**

RESPECT-mil is a current treatment program for depression and PTSD and an integrated care program that was initiated five years ago. RESPECT-mil is a program to detect depression and/or PTSD by first screening each active duty military member during each encounter in primary care. First, the military member is provided a self-report screening form to complete
upon arrival to the appointment. The nurse assesses the answers and follows specific criteria to decide if further self-report screening is needed. If screening is needed, the nurse provides the patient with the self-report screening tools to complete. Tools used initially include the 2-item PHQ2 (depression) and the 4-item PCL4 (PTSD). If responses meet criteria, the patient is provided the PHQ9 (depression) and/or the PCL-17 (PTSD). The completed screens are then provided to the primary care provider for review with the patient’s appointment. The primary care provider assesses the patient using the self-report measures (PHQ9 and PCL-17) and interviews to determine if treatment should be offered. Together with the patient, a decision is made for treatment as usual, referral to specialty behavioral health care or referral to RESPECT-mil. If referred to the RESPECT-mil program, the primary care provider initiates treatment and involves the care facilitator by sending a request to the care facilitator to enroll the patient. The primary care provider outlines an initial plan of care and begins treatment based upon the protocol. The care facilitator is made of aware of initial treatment and involves the psychiatrist in planning care and providing additional treatment suggestions to the primary care provider through weekly conferences between psychiatrist and care facilitator. The care facilitator provides self-care education, monitoring and support to the patient throughout their enrollment in RESPECT-mil.

Re-engineering systems for treatment of behavioral health conditions was initially tested with depression. Five healthcare organizations across the United States with associated primary care practices participated in a model approach for the treatment of depression that included primary care management with staff support and psychiatric consultation. Severity of depression was graded using the standardized Patient Health Questionnaire (9) (PHQ9) and patients with depression were provided follow-up and support by nursing staff. Patients received a phone call
from a nurse one week after diagnosis and then monthly thereafter. Nurses assisted the patients to adhere to medication therapy and supported self-care activities. Psychiatrists provided weekly supervision for the nurses providing telephonic follow-up and support. In a pilot study, improvement in depression was much greater in the re-engineered systems model, RESPECT-mil, than in usual care (Dietrich et al., 2004).

RESPECT-mil was adapted by adding PTSD with depression as a target for primary care detection and treatment and tested initially at Fort Bragg, North Carolina (Engel et al., 2008). Because 90% of soldiers receive at least one primary care visit each year and both PTSD and depression result in increased numbers of outpatient visits, primary care is broad in reach and occurs multiple times over a military career providing opportunity for detection and treatment of PTSD and depression in primary care (Engel et al., 2008).

RESPECT-Mil Process

At each primary care visit, the soldier is screened with a standardized tool to detect depression and PTSD, and, if detected, offered a referral to RESPECT-mil for treatment within primary care, or to a behavioral health provider for treatment, based on the severity of the mental health issue. The patient health questionnaire (two-item short version) PHQ-2 is a two-item depression screen that has a sensitivity of .86 and specificity of .78 (Arroll et al., 2010). The PCL PTSD screen has a sensitivity of .82 and specificity of .83 (Weathers, Litz, Herman, Huska & Keane, 1993). If the PHQ-2 has one item scored as positive by the soldier, the soldier is administered the PHQ9 complete depression screen. If the soldier has two items marked positive on the PCL, the soldier is administered the 17 item full PCL. The primary care provider uses the standardized scores along with a self-determined measure of severity of impact to quality of life and interview to determine diagnosis and treatment. Diagnosis and treatment are guided by the
DOD clinical practice guidelines (The management, 2009; The management, 2010). A suicide risk assessment question is answered with each screen and when positive, a suicidal assessment is completed by the primary care provider. Depending on the results of the standardized screening, suicidal assessment and patient preference, treatment is initiated in primary care, and/or referral is made to the RESPECT-mil program or behavioral health care provider. When RESPECT-mil is the choice of treatment, the primary care provider places a referral to the program. The care facilitator receives the referral and begins the process of the RESPECT-mil program.

Once receiving the referral, the care facilitator places a phone call to the soldier within 7 to 10 days. This initial phone call is to establish rapport, educate the patient about the program, and provide initial reinforcement regarding psychotropic medications and other therapies that may have been prescribed. Education about self-care for the soldier is provided and a contract developed between the care facilitator and soldier for initiation of self-care. RESPECT-mil cases are provided consultation by the supervising psychiatrist in care conferences between the care facilitator and psychiatrist on a regular basis, resulting in recommendations for care to the primary care provider. Each assessment utilizes the PHQ9 and PCL to assess progress and assess suicidal risk. Soldiers are discharged from RESPECT-mil when meeting outcome goals, moving to a new duty station or the decision is made by the soldier to discontinue program treatment.

Evaluation of RESPECT-mil Program

An initial evaluation of RESPECT-mil’s pilot site program completed in 2007 focused on compliance with PTSD and depression screening and evaluation in primary care. Data was extracted from Military Health Services Data Repository, Armed Forces Health Longitudinal Technology Application (AHLTA) electronic medical records and initial provider assessment
forms. A comparison between 100 family practice visits not in the RESPECT-mil program was made to 3067 service member visits within the pilot program. Results showed 70% of the RESPECT-mil patient visits were screened for depression and PTSD with 17% screening positive for depression, PTSD or both, whereas only 7% of the comparison group was screened (Engel, 2011). Twenty-four percent of the screened positive service members were provided a treatment plan that included medication, behavioral therapy or follow-up (Engel, 2011). Updated outcomes in 2011 indicate that 86% of all visits to primary care are screened for depression and PTSD and that 13% of those screened are positive for one of these disorders. Of those referred to the Respect-Mil program, 66% accepted care (Engel, 2011).

The RESPECT-mil program is now operational in 32 out of 37 United States Army sites and in total 1,127,037 primary care visits have been screened worldwide (Engel, 2011; Weis & Baliton, 2011). Overall, 86% of primary care visits have been screened for depression and PTSD and the percentage of visits screened is steadily increasing (Engel, 2011; Weiss & Baliton, 2011). Of screened visits, 13% are positive and half of those are associated with either depression or possible PTSD. Suicidality is expressed in 0.96% of screened patients (Engel, 2011; Weiss & Baliton, 2011).

Phase two program evaluation (2010) shows improvement in outcome as fidelity of program implementation increases (RESPECT-mil Maintaining Momentum, 2010, Savannah Respect-Mil Champion Conference, Georgia). Phase two program evaluation studies are occurring in four stages. The first stage focused on initial screening, assessment and disposition of those who screened positive on the PHQ two-item depression screen and/or the four-item PCL. In 2011, 604,280 visits were screened for depression and PTSD. Of these, 34,465 were diagnosed with a behavioral health illness. Of the 10,063 that screened positive, 74% had a
treatment plan or referral placed (RESPECT-mil, 2010). A positive depression screen occurred in 5948 and positive PCL in 4123 soldiers. Of these, 788 had thoughts that they would be better off dead and 51 endorsed suicidality (RESPECT-mil, 2010). Three hundred forty two (43%) accepted referral for treatment, 52% with behavioral health and 30% with the primary care provider (RESPECT-mil, 2010). A trend toward increasing adherence with the treatment plan was found, as scores on the PHQ-2 item and PCL-4 item scales increased. In 2011, an accumulated 1,322,524 soldiers have been screened in primary care (Deployment Health Clinical Center, 2012). Of these, 12.7% screened positive for depression and/or PTSD. Program participation is increasing with an average increase of more than 50,000 screenings per month in 2011 (Deployment Health Clinical Center, 2012). Overall, more than 13,000 soldiers have been treated through the RESPECT-mil program and more than 27,000 additional have been referred to behavioral health care (Deployment Health Clinical Center, 2012).

The benchmark for implementation is 100% of primary care patients screened for depression and PTSD. Current gaps in implementation are lack of screening in 17.6% of service members and lack of referral for treatment in 3% of those who endorse suicidal ideation (RESPECT-mil, 2010).

**Significance to the Doctor of Nursing Practice**

Evidence-based practice must direct care provided by the advanced practice nurse. Nurses as coordinators of care provide an essential component of collaborative and patient-centered medical home models of care. Care managers provide the coordination of care between primary care providers, patients, and psychiatric consultants. Nurses are key providers of health care for veterans of the conflict in Iraq and Afghanistan and require knowledge of the impact on behavioral health care of these veterans (Wieland, Hursey, & Delgado, 2010).
Programs are dependent upon multiple nurse roles to be effective. Fidelity of implementation of any program directly impacts outcomes for patients. Provision of program evaluation serves to provide quality assessment and evaluation of barriers to improve both implementation and patient outcomes. Nurses benefit by improvement in practice in providing service that improves the health of the military by recognizing barriers and suggesting program improvements.

Doctors of nursing practice bring a population focus to the development of clinical programs of care delivery based upon evidence. As a clinical leader, the DNP is able to transform health care delivery systems, evaluate and contribute to evidence-based practice and establish new standards for quality by both evaluation of evidence-based research and contribution of practice-based research. Creation of clinical practice guidelines for treatment and treatment programs of military members with depression and/or PTSD based upon evidence-based practice requires critical evaluation of the evidence for quality and applicability to the population. This practice inquiry will provide critical evaluation of the current literature in order to make evidence-based recommendations for treatment and for evaluation of programs of treatment.

**Significance of the Problem**

Although the department of defense is actively engaging in programs to promote resilience and return to normalcy after deployment, PTSD and depression are found in up to 30% of returning soldiers. Moreover, the ongoing rate of rise in active suicides among military veterans is alarming, and deaths due to suicide currently exceed those due to combat. Evaluation of available methods of detection and treatment for depression and PTSD as well as methods to evaluate current programs to determine gaps in knowledge and program delivery are essential to
improve the outcomes of military members with PTSD or depression. Determination of best practices can provide the doctor of nursing practice with guidelines for treatment of this population.
CHAPTER TWO: METHODS

A critical review, synthesis and analysis of the literature regarding treatments, treatment programs and models of care for post-traumatic stress disorder (PTSD) and depression in military members and recommendations for program evaluation of evidence-based treatments was conducted. A proposal and exemplar of a thorough formative program evaluation follows recommendations for practice and critical review. The critical literature review and synthesis follows the guidelines of Galvan (2006) which is a systematic step by step method of literature review that lends itself well to studies in the behavioral and health sciences (Mongan-Rallis, 2006). Models of care for identification and treatment of PTSD and depression in the military population and treatment methods for depression and PTSD were reviewed in order to make evidence-based recommendations for primary care and advanced nursing practice care of military and veterans with PTSD and depression.

Evidence-based treatment program recommendations are built upon a lattice of well conducted research. As the research evidence literature builds and concurrence is found among outcomes from individual treatments, treatments can be combined into programs to maximize the effectiveness of the treatments. Treatment programs, although built upon reliable and valid individual treatments with proven effectiveness may not provide the expected results. It is necessary to also evaluate the programs comprised of effective treatments to determine if combinations of effective treatments delivered in the most effective way provide improved outcomes. This practice inquiry examined the literature of the individual treatments that support the programs as well as the effectiveness of treatment programs, including program processes.
**Galvan’s Approach**

According to Galvan’s approach, the literature review was conducted in five steps: formulation of an initial question, review of the literature, synthesis of the literature and critique followed by proposals for evidence-based practice (Galvan, 2006). Weight of evidence was analyzed using the process for evidence-based analysis of the Oncology Nurses Society (Mallory, 2010) Oncology Nursing Society, *Putting Evidence into Practice*, (ONS/PEP) *Levels of Evidence* scale. This system is an adaptation of the *Rating the Quality of Evidence for Clinical Practice Guidelines* developed by Hadorn and others (Hadorn, Baker, Hodges, & Hicks, 1996). Recommendations for practice were based on the ONS/PEP, *Weight-of-Evidence Classification Schema*, developed by Mitchell and Friese (Eaton & Tipton, 2009). A proposal for evaluation of programs was developed after reviewing existing programs and identifying the gaps in evaluation. Recommendations for practice were based on the following classification: (1) recommended for practice, (2) likely to be effective, (3) benefit is balanced with harms, (4) effectiveness not established; (5) effectiveness unlikely; and (6) not recommended for practice (Eaton & Tipton, 2009).

**Formulation of Initial Question**

The initial question was: What are the best evidence-based practices and processes for the identification and treatment of PTSD and depression in military members? What essential elements, determined by evidence-based practice, are necessary to provide comprehensive treatment programs for PTSD and depression within the military population? Formulation of the question allowed the variables of interest to be determined. These variables were used as search terms for exploration of on-line databases of literature to identify pertinent literature to include in
the review and critique (Mongan-Rallis, 2006). Key words used to initiate the search were *posttraumatic stress disorder or depression* combined with *military member or active duty*.

**Literature Review**

Evidence-based practice requires a systematic review of the literature, synthesis of the findings of research and critical analysis of the research to determine the best quality evidence which is combined with clinical experience to determine the evidence base for best practice (IOM, 2001). This evidence must be combined with patient preferences in order to provide guidelines for clinical practices that are evidence-based, patient-centered and clinically meaningful.

The next step in the Galvan approach is a thorough review of the literature based on the research question or clinical problem. This literature review was completed using the literature review guidelines of Polit and Beck (2012). Each article was reviewed and the following data elements were collected on a literature review form: citation, type of study, sample and setting, measures and methods, design, qualitative tradition (if applicable), sample, data sources, statistical tests, findings, effect size, themes, recommendations, strengths and weaknesses (Polit & Beck, 2012).

A comprehensive review of available literature including sources of gray literature was completed. A professional librarian located at the University of Arizona was consulted to assist with the literature search and assure completeness. The search was limited to: (a) humans, adult, (b) English language, and (c) the past five years. PubMed was searched for direct and associated literature sources relevant to the literature review. Other databases searched included PsycInfo, CINAHL, Cochrane, AHRQ, Academy Health, Center for Health Quality Outcomes and Economic Research, and Health Services Research and Development Service at the Veterans
administration. A snowball technique starting from the original literature source was used to ensure completeness of data retrieval. Ongoing research was searched using clinicaltrials.gov, US Department of Health and Human services, Health Resources and Services Administration, National Institute of Mental Health, SAMSHA and National Institutes of Health Comparative Effectiveness Research.

**Literature Synthesis and Critique**

Synthesis and critique of the literature are the third and fourth steps in the Galvan guidelines (Galvan, 2006). Literature results were critiqued based upon methodological strength, relevancy, timeliness, and credibility.

Data reduction, data display, data comparison and data conclusion assisted with synthesis and critique (Whittemore & Knafl, 2005). Data reduction served to organize, extract and code data to support recommendations for practice. To accomplish the data reduction, research was graded in accordance with the Oncology Nursing Society, *Putting Evidence into Practice*, (ONS/PEP) *Levels of Evidence* scale is used (ONS/Tables) (Figure 1). Ratings are level I (strongest) to level III (weakest). The strongest level (level I) contains subcategories for meta-analysis, systematic review and randomized, controlled trials. Sub-categories of lesser strength include the well-designed trial without randomization, such as cohort and time series designs (Hadorn et al., 1996).

Level II evidence ratings include systematic reviews of non-experimental designs, well-conducted case control studies, poorly or uncontrolled studies, conflicting evidence and non-research based evidence. Level III ratings are non-research based. Data coding assists in synthesis and analysis of findings and provides assurance of a comprehensive and objective approach to analysis. Data was coded into the following groups: screening and barriers to
treatment for mental health care in active duty, cognitive behavioral therapy for depression and for PTSD, non-cognitive behavioral therapies for depression and for PTSD, pharmacological therapy for depression and for PTSD, complementary and alternative therapies for PTSD and for depression, and programs of treatment for PTSD and depression.

**FIGURE 1.** Rating the Quality of Evidence for Clinical Practice Guidelines


**Data display.** Data displayed in logical, consistent format facilitates identification of themes, relationships and patterns. The format for the data display follows the format for quantitative and qualitative study evidence tables in Polit and Beck (2012). The citation, type of

<table>
<thead>
<tr>
<th>ONS Levels of Evidence</th>
<th>Evidence Source</th>
<th>Strength of Evidence</th>
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<tbody>
<tr>
<td><strong>ONS Level</strong></td>
<td><strong>Level of Evidence Subcategory</strong></td>
<td><strong>Research Based Evidence</strong></td>
</tr>
<tr>
<td>I</td>
<td>1</td>
<td>Meta-analysis or systematic reviews of multiple well designed, randomized, controlled clinical trials</td>
</tr>
<tr>
<td>2</td>
<td>Well-controlled, randomized clinical trials with adequate sample size</td>
<td>Case studies, opinions of expert authorities, agencies or committees</td>
</tr>
<tr>
<td>3</td>
<td>Well-designed trial without randomization (single group prepost, cohort, time series studies)</td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>4</td>
<td>Well-conducted, systematic review of none experimental design studies</td>
</tr>
<tr>
<td>5</td>
<td>Well-conducted case-control study</td>
<td></td>
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<tr>
<td>6</td>
<td>Poorly controlled (flawed randomized studies) or uncontrolled studies (correlational descriptive studies)</td>
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<tr>
<td>7</td>
<td>Conflicting evidence or meta-analysis showing a trend that did not reach significance</td>
<td></td>
</tr>
<tr>
<td>National Institutes of Health Consensus Report</td>
<td>Published practice guidelines, for example by professional organizations, healthcare organizations, or federal agencies</td>
<td></td>
</tr>
<tr>
<td>III</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

*Note. Reprinted from Journal of Clinical Epidemiology, 49, D. C. Haselor, D. Dever, J.S. Hodges, & N. Hicks, Rating the Quality of Evidence for Clinical Practice Guidelines, 970-978, 1996, with permission from Elsevier.*
study, sample and setting, measures and methods, data sources, statistical tests, findings, effect
size, themes, recommendations, strengths and weaknesses are displayed in table format (Polit &
Beck, 2012). Data were compared after creation of the data tables. Appendix A displays the
exemplar of formative program evaluation of RESPECT-mil, Table B1 (see Appendix B) shows
the findings for screening for depression and PTSD; Table B2 (see Appendix B) shows the
results for barriers to detection; Table B3 (see Appendix B) shows the results of Cognitive
Behavioral therapies for treatment of PTSD; Table B4 shows the results for non-CBT treatment
of PTSD and Table B5 shows the results of pharmacological treatment of PTSD. The results for
CBT treatment of depression are found in Table C1 (see Appendix C) and the results for non-
CBT treatment of depression are found in Table C2. Pharmacological treatment of depression is
found in Table C3. Complementary and alternative treatment of PTSD is found in Table C4 and
CAM treatment of depression is found in Table C5. Appendix D includes the literature tables
addressing treatment programs and models of care. Treatment programs are found in Table D1
and models of care are found in Table D2.

Proposals for Evidence-Based Practice

The next portion of this practice inquiry provides evidence-based practice
recommendations of programs and treatment methods for PTSD and depression in military
populations. Identification of the problem, prioritization, review, critique and synthesis of the
literature allows development of an evidence-based guideline and a pilot program can then be
assessed for achievement of desired outcomes. The problem must first be identified as a high
priority that is applicable to the population of concern. The problem of posttraumatic stress
disorder and depression in military members has been identified as a high priority by the
Department of Defense and the Institute of Medicine among others. Many classification schemes
for weighting evidence are available to support recommendations of evidence-based practices and implementation into clinical practice. The Agency for Healthcare Research and Quality (Mulrow & Lohr, n.d.) emphasizes the need to include an analysis of reliability, validity, feasibility and utility with the analysis of the strength of the evidence (Mulrow & Lohr, n.d.). It is important to avoid confusing a lack of evidence of efficacy as equivalent to a lack of efficacy (Mulrow & Lohr, n.d.). In order to determine if a particular intervention is efficacious it must be studied. Lack of evidence may indicate a need for research rather than a lack of effectiveness. Practice recommendations need to take the preferences of the patient into the decision for treatment method.

In this practice inquiry, the ONS/PEP Weight-of-Evidence Classification Schema is used for practice recommendations (Mitchell & Friese, 2009). It contains six categories based on the principles of data quality, outcome effect size and concurrence between studies. Practices are either: (1) recommended for practice, (2) likely to be effective, (3) benefit is balanced with harms, (4) effectiveness not established, (5) effectiveness unlikely, or (6) not recommended for practice (Eaton & Tipton, 2009).
**TABLE 1. ONS/Putting Evidence into Practice: Weight-of-Evidence Classification**

<table>
<thead>
<tr>
<th>ONS WEIGHT OF EVIDENCE CLASSIFICATION</th>
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<tbody>
<tr>
<td>1. Recommended for practice</td>
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<tr>
<td>2. Likely to be effective</td>
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<tr>
<td>3. Benefit is balanced with harms</td>
</tr>
<tr>
<td>4. Effectiveness not established</td>
</tr>
<tr>
<td>5. Effectiveness unlikely</td>
</tr>
<tr>
<td>6. Not recommended for practice</td>
</tr>
</tbody>
</table>

*(Note. Based on the work of Mitchell & Friese (Eaton & Tipton, 2009).)*

**Proposal for Program Evaluation**

Program evaluations have multiple purposes that depend upon the needs of the invested parties or stakeholders. Program evaluations may influence policy, inform social action, assist in program improvement or suggest the value of an existing program (Rossi, Lipsey, & Freeman, 2004). Program evaluations can assess the need for a program, monitor progress or measure outcomes. The stage of a program will determine the type of program evaluation that is appropriate to conduct (McDavid & Hawthorne, 2006). Program evaluations may be ex-ante (before a program is proposed) formative (conducted when a program is forming or in the early stages of implementation), summative (to determine the effectiveness) and ex-post (which are challenged by lack of reliable information resources) (McDavid & Hawthorne, 2006).

Comprehensive program evaluations of treatment programs extend from detection through reach to treatment and outcomes.
Proposed Model for Program Evaluation

A formative evaluation process for existing programs of detection and treatment of PTSD and depression is proposed as an exemplar of a formative program evaluation. RESPECT-mil, a program for PTSD and depression within the active duty military population, was used as an example of an implementation framework for program evaluation. Implementation frameworks provide a conceptual framework for evaluation of a program that includes review of exogenous factors, structure, management, delivery of services, patient flow, individual outcomes and program outcomes which combined provide information for program evaluation (Wholey, Hatry, & Newcomer, 2010).

A formative evaluation process is the most appropriate when programs are new or in the early stages of implementation. Goals of formative program evaluation are to identify ways to improve the program through careful analysis of reach, fidelity and process. A current program for PTSD and depression in the military, RESPECT-mil, was used as an example of an implementation framework for program evaluation. RESPECT-mil program includes screening and treatment elements. Implementation frameworks provide a conceptual framework for evaluation of a program that includes review of exogenous factors, structure, management, delivery of services, patient flow, individual outcomes and program outcomes which combined provide information for program evaluation (Wholey, Hatry, & Newcomer, 2010).

Summary

The methods section describes the process of question formulation, literature review, critique and synthesis, data reduction, weight-of-evidence and practice recommendation. The literature review and synthesis followed the guidelines of Galvan (2006). The literature review was conducted in five steps: formulation of an initial question, review of the literature, synthesis
of the literature and critique followed by proposals for evidence-based practice (Morgan & Bibb, 2011). Weight of evidence was analyzed using the process for evidence-based analysis of the Oncology Nurses Society (Mallory, 2010) Oncology Nursing Society, *Putting Evidence into Practice*, (ONS/PEP) *Levels of Evidence* scale. Recommendations for evidence-based practice was based upon the ONS/PEP Weight-of-Evidence Classification Schema, is used for practice recommendations (Mitchell & Friese, 2009). The proposal for program evaluation followed the guidelines proposed by McDavid and Hawthorne (2006).
CHAPTER THREE: RESULTS

The results of the literature search are presented in this chapter. The search focused on the military population, although most articles address care of the Veteran rather than the active duty member. Treatment of depression literature was reviewed in the psychological domains of Cognitive Behavioral Therapy (CBT) and non-CBT treatments, pharmacological treatments and complementary and alternative treatments. Treatment of posttraumatic stress disorder was reviewed in the domains of CBT and non-CBT psychological therapies, pharmacological treatments, and complementary and alternative treatment methods. Results for empiric research regarding treatment programs and models of care for treatment of depression and PTSD are also presented. Several research studies addressed both depression and PTSD, as these were common co-morbidities. Depression was most often found as a secondary outcome measure in research conducted on treatments for posttraumatic stress disorder.

Within the area of program evaluation, the literature regarding screening and barriers to care was addressed to assure a comprehensive evaluation. Understanding the evidence regarding screening and barriers to care enabled a more comprehensive investigation that may affect reach and penetration of the program. Evidence tables of literature reviewed are located in the appendices. Search findings are presented first followed by recommendations for evidence-based practice. Finally, a proposed model for evaluation of programs is presented.

Overall results yielded 137 unique references that met criteria for critical analysis. All empiric studies that addressed screening, barriers or treatment of either PTSD or depression in military members within the past five years were included. The limits used in the search included articles that were empiric, English language and human studies. The research on EMDR as a
treatment for PTSD included dates prior to the past five years to be inclusive of the research on EMDR.

**Initial Search for Treatment of Depression and PTSD**

The initial search was conducted in PubMed and used the MESH terms Medline ((depression[MeSH Major Topic]) AND military[MeSH Major Topic]) and produced 112 references. Of these, two were research studies that addressed depression treatment in military members. MESH terms. Posttraumatic stress disorder and military members search produced 684 articles. Of these, 28 were research studies of posttraumatic stress disorder treatment in military members. Additional searches were conducted using models of care, integrative care, collaborative care, primary care medical homes with active duty or military or Veterans and treatment of depression or posttraumatic stress disorder. United States military programs or program evaluation were combined with posttraumatic stress disorder and depression treatment. Engagement in care, health care processes and outcomes were combined with depression and posttraumatic stress disorder in separate searches and yielded one review of health indicators for military. The initial search was broad and searched for all research involving PTSD and depression in military members. Subsequent searches were limited to only articles that addressed treatment of PTSD and depression.

**Subsequent Searches for Treatment of Depression or PTSD**

Searches were repeated at five subsequent time intervals; each using the database entitled “Evidence-Based Decision-Making and Clinical Effectiveness Research Arizona Health Sciences library/College of Medicine and Evidence-based Decision Making.” This database applies the same search terms to several different databases simultaneously. The data derived were from all searches not including the original search. Databases searched with the University of Arizona
evidence-based decision making and clinical effectiveness consisted of the Cochrane systematic review, the ACP journal club, PubMed, ACP pier, clinical practice guidelines, UpToDate, STATRef! Medical Books, MD Consult, Cleveland Clinic Foundation Intensive Review of Internal Medicine and Google custom search. The search terms were narrowed at this point to identify literature that specifically addressed treatment of PTSD and depression in military members or active duty.

Using the terms active duty or military, treatment and depression or PTSD, CPG, UptoDate, StatRef!, MD consult and Cleveland clinic searches produced no empiric studies, as these sources are synthesis of research presented in either review format or as clinical practice guidelines. Cochrane systematic reviews produced 322 systematic reviews that did not address the military population. ACP journal club produced no empiric studies. PubMED, searched within these subsequent multi-database searches, located 54 articles different from the initial PubMED search. Fourteen PubMED studies met criteria and were included in the critique. Depression or PTSD and active duty or military and psychological treatment produced 71 articles. Of these, two were duplicates and the others were either general reviews or addressed topics other than treatment. The terms active duty or military and model of care and depression or PTSD produced 13 PubMED articles and two systematic reviews. Of the systematic reviews, one met criteria and one did not address either PTSD or depression. Of the remaining articles, three were duplicates and the others did not address PTSD, depression, models of care or barriers to care.

In the final search, PubMED, CINAHL, PsychInfo and Google Scholar were used to search, utilizing the terms depression or PTSD and active duty or military members and outcomes. The PubMED search located 73 articles. Of these, eight addressed treatment of either
PTSD or depression. Of those eight that addressed treatment, two were duplicates. Combining PubMed prognosis and therapy and using the terms *active duty or military members* and *treatment and depression or PTSD* produced a total of 43 articles. Of these, 20 addressed treatment of either PTSD or depression and were included. CINAHL (2007-2012) produced 124 articles. One hundred twenty-three were not research or topics other than treatment, programs of care or models of care. PsycInfo (2007-2012) produced 15 results which included six duplicates. PsycInfo (2007-2012) produced one article addressing collaborative care and depression and eight articles addressing comorbid PTSD and depression treatment in military members. Google Scholar (2010-2012) produced 5680 articles. Of these, all but 44 were neither research nor addressed treatment of depression or posttraumatic stress disorder.

**Proposed Trials**

Across all five searches, a total of 61 new proposed trials addressing PTSD were located. Clinical trials.gov located 61 studies for PTSD/interventional studies. Nine studies are currently recruiting subjects for studies in gene expression correlates, repetitive trans-cranial magnetic stimulation, executive function training, brain imaging, group family therapy, prolonged exposure, emotional freedom technique and Seroquel XR. Studies proposed include neuropsychological markers of PSTD relapse and adaptive disclosure.

**Search for Treatment Programs and Models of Care**

There were no articles found using the search terms *engagement of care plus active duty and depression or posttraumatic stress disorder (PTSD); health care processes and active duty and depression or PTSD or integrative care plus active duty plus PTSD or depression. Primary care medical homes plus active duty plus PTSD or depression; mental health treatment programs plus active duty plus PTSD or depression and engagement in care plus active duty and*
PTSD produced no articles. Health care processes plus active duty and PTSD or depression produced no articles. Health care outcomes plus active duty and depression located one systematic review and one article that were included in the critique. PubMed located six articles, one which addressed incidence of depression and five articles that addressed PTSD. Of these, one was a duplicate and the others addressed incidence rather than treatment. Models of care plus active duty and PTSD located three PubMed articles. Of these, one study addressed health care utilization and two addressed intimate partner violence. Collaborative care plus active duty and PTSD or depression located one article which was a duplicate. Program evaluation and active duty and depression or PTSD located two unique articles. Screening or barriers to care and PTSD or depression and military members were combined and searched with the evidence-based database yielding 30 articles, 22 of which were empiric studies and were included in the critique.

Search Summary

In total, 7175 articles were located and subjected to a title and abstract review. Sixty-one new research proposals or studies were located. Of these, 137 articles met criteria for critique and synthesis based upon empiric design, English language and currency. The selected articles are empiric studies of either treatment methods for depression or PTSD in military members or empiric studies of models of care or treatment programs for depression and/or PTSD in the military. Literature that was eliminated was either not research, addressed a different population or included co-morbidities other than PTSD or depression.
### TABLE 2. Search Summary Statistics

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Synthesis of the evidence regarding treatment of PTSD and depression in military members is presented in the next section. For military members, there were only three studies of depression treatment in isolation from PTSD. When there is evidence for treatment of each of these disorders together, the evidence is summarized under each category. Evidence is presented for treatment of PTSD, treatment of depression and programs and models of care.

**Search Results**

**Treatment of PTSD with Cognitive Behavioral Therapy**

A total of 26 studies were located within the past five years that empirically tested treatment outcomes with CBT in military members with PTSD. Of these, eight were conducted amongst active duty soldiers. The remainder, conducted with Veterans, included individual studies, meta-analyses and systematic reviews.

Cognitive behavioral therapy (CBT) was compared to other therapies in two meta-analyses and one systematic review demonstrating efficacy of CBT for treatment of PTSD. Two meta-analyses compared cognitive behavioral therapy with other treatments. Powers, Halpern, Ferenschak, Gillihan and Foa (2010) reviewed 13 randomized placebo–controlled studies (RCTs) with 675 adolescent and adult subjects, including Veterans, that investigated CBT prolonged exposure (PE) and comparing it to treatment as usual (TAU), cognitive processing...
therapy (CPT) and eye movement desensitization reprocessing (EMDR). Findings were reported in effect size (ES) using Hedges g. Hedges g provides a pooled estimate of variance using a more conservative approach than Cohen’s d and less biased in small samples (Grissom & Kim, 2005). Hedges g ES for PE as compared to TAU was 1.08 (large effect). When comparisons were made between PE and Cognitive processing therapy or EMDR no significant difference was found. The second meta-analysis (Ougrin, 2011) studied 20 RCTs comparing prolonged exposure CBT to CPT and found no statistical difference between CBT-PE and CPT. Both were effective in reducing PTSD symptomatology among Veteran populations.

Steenkamp and Litz (2013) conducted a systematic review of treatment outcome studies. Of these, four were RCTs on CBT-PE, one on CPT, and two were quasi-experimental studies of behavioral activation. These outcome studies demonstrated that trauma-focused therapy such as prolonged exposure is better than nothing, supportive therapy and psychodynamic therapy with a small effect size. Seven randomized placebo controlled trials were located that support CBT as an effective treatment for PTSD (Beidel, Frueh, Uhde, Wong, & Mentrikoski, 2011; McClay, Wood, Webb-Murphy, Spira, Weiderhold, Pyne, & Weiderhold, 2011; Monson, Fredman, Macdonald, Pukay-Martin, Resick, & Schnurr, 2012; Morland, Hynes, Mackintosh, Resick, & Chard, 2011; Nacash, Foa, Huppert, Tzur, Fostick, Dinstein, Polliack, & Zohar, 2011; Schnurr, Friedman, Engel, Foa, Shea, Chow, Resick, Thurston, Orsillo, Haug, Turner, & Bernardy, 2007; Strachan, Gros, & Ruggerio, 2012).

Treatment duration as few as six 90 minute treatments were effective in two studies of active duty military members, but there was no long term follow-up. CBT with prolonged exposure in women produced a greater effect (E=0.27) than present-centered therapy (Schnurr et al, 2007). Couple-based CBT produced improved relationship satisfaction and CAPS.
posttraumatic distress scores more than wait list controls (Monson et al., 2012). CBT using imagery rehearsal to treat nightmares is provided a level A recommendation by the American Academy of Sleep Medicine based on ten studies (Aurora et al., 2010). This technique uses nightmare recall, writing, creating and rehearsing a more positive version of the dream.

CBT treatments are implemented in various formats. Individual, group in-person formats are most common. Virtual reality CBT prolonged exposure was studied in five studies of individual treatment and one group virtual reality CBT prolonged exposure.

In a recent meta-analysis (Barrera, Mott, Hofstein, & Teng, 2013), nine RCT’s providing exposure were reviewed. Of these, therapies included imagery rehearsal, multiple channel exposure, culturally adapted exposure, affect management, and trauma-focused group therapy. Overall effect size for group CBT was large (ES = 1.13), and effect size was greater in treatments that included traumatic exposure than in those that did not. Attrition from treatment was greater in groups that included exposure than those that did not.

Group CBT demonstrated improved outcomes over waitlist controls or usual care. Effect sizes for group CBT were less than effect size for individual CBT. All forms of CBT demonstrated significant improvements, as compared to treatment as usual.

Outcome studies demonstrated reduction in symptoms more commonly than elimination of criteria for diagnosis, especially in the Veteran population. Studies of active duty military members did not include long-term follow-up outcome data. Gaps existed in determination of length of benefit and quality of life measures with CBT, especially in the active duty population.

**Treatment of Depression with Cognitive Behavioral Therapy**

Few studies addressed treatment of depression with CBT in the military population in isolation from PTSD. Three studies addressing CBT for treating depression were located in the
literature. The highest rigor research located was an RCT of 85 Veterans without PTSD (Mohr, Carmody, Erickson, Jin, & Leader, 2011) comparing CBT administered via telephone to CBT administered in person. A significant improvement in depression as measured by the Hamilton Depression Scale and PHQ9 resulted from both telephone and in-person delivered CBT. There was no significant difference in outcome between telephonic vs. in-person therapy. Karlin, Brown, Trockel, Cunning, Zeiss and Taylor (2012) studied a convenience sample of 356 Veterans using CBT-D, a national standardized CBT protocol for depression treatment with CBT. A significant decrease in BDI-II scores was found. Ready, Sylvers, Worley, Butt, Mascaro and Bradley (2008) studied the impact of group based exposure CBT on PTSD and depression in 30 Veterans with severe PTSD. In these combat Veterans, BDI scores were not improved at the end of the treatment process but did reach significant improvement at the seven month follow-up.

There is a dearth of research on treatment for depression in military members, either Veteran populations or active duty, within the past five years. Most research on treatment of PTSD included depression as a secondary outcome measure.

**Non-CBT Psychological Treatment of Posttraumatic Stress Disorder**

Non-CBT therapies included EMDR, CPT, behavioral activation, present-centered therapy, peer support trauma risk management, psychoeducation with case management, adaptive disclosure, Battlemind training, Acceptance and Commitment therapy, and brief eclectic therapy. In this category, one meta-analysis was located that compared CBT to EMDR (Ho & Lee, 2012) in eight studies. Ho and Lee found a small effect size between CBT and EMDR (Hedges g=0.23) favoring EMDR as producing a faster response to therapy. Bisson (2009) conducted a systematic review of 33 RCT comparing TAU to individual CBT, group
CBT, and EMDR. The standardized mean difference (SMD) was used to describe the pooled variance. All treatments were better than TAU. Individual CBT had a greater SMD (-1.4) than group CBT (-0.72). EMDR SMD (-1.5) was similar to individual CBT.

Albright and Thyer (2010) conducted a systematic review of six RCT and three quasi-experimental trials of EMDR and found no clear evidence for efficacy in treatment of PTSD. Studies reviewed were poor in design, lacking blinding, standardized protocols, and unclear treatment duration. Very small within group sample sizes were present in larger studies. No evidence of effectiveness of EMDR was found in this systematic review. However, Siedler and Wagner (2006) conducted a systematic review of EMDR of eight RCT conducted between 1989 and 2005. Siedler found small sample sizes but a small effect size (0.28) of EMDR for treatment of PTSD. Siedler and Wagner found no difference in effect between CBT and EMDR. Hertlein and Ricci (2004) studied 16 trials of EMDR completed between 1997 and 2003 and found sample size varying from 2 to 105 persons with no consistent benefits of EMDR.

Although the DOD recommends the use of EMDR for treatment of PTSD, outcomes were inconsistent between studies. EMDR studies with fidelity to a manualized protocol demonstrated better outcomes than those that did not have these controls in place.

Psychoeducation and self-management had a weak effect on PTSD (Dunn, 2007; Rizzo, Difede, Rothbaum, Reger, Spitalnick, Cukor, & McClay, 2012). Trauma management had significant effect on PTSD scores (Beidel, Frueh, Uhde, Wong, & Mentrikoski, 2011). Present centered therapy did less well in relieving PTSD symptoms than prolonged exposure CBT (Schnurr et al., 2007).
Non-CBT Treatment of Depression in Military Members

One study (Strachan, Gros, & Ruggerio, 2012) involving treatment of depression with psychological therapies was located. This study compared the treatment of behavioral activation accompanied by CBT for depressed Veterans with PTSD to treatment as usual. This study conducted with a small population of Veterans (n=31) in Virginia found a significant improvement in self-report Beck depression inventory scores with CBT and behavioral activation. Evidence for psychological treatment of depression in military members was lacking.

Unrecognized PTSD may complicate treatment of depression. Gerrity, Corson and Dobscha (2007) studied the use of the PCL (posttraumatic stress disorder scale) to determine if it could be used to detect depression and how often the PCL was positive in depression within the military population. 398 primary care patients seen at the Veterans Health center with depression were screened with the PCL. Of these, the mean PHQ9 score was 14.8, and there was a positive screen for PTSD in 37% of the sample. PTSD scores were strongly associated with PHQ scores ($r = 0.59$, $p < 0.001$).

Pharmacological Treatment of Posttraumatic Stress Disorder

Thirteen studies addressing the use of pharmacological agents to treat PTSD in military members were located within the past five years. One meta-analysis (Stewart & Wrobel, 2009) reviewed 13 pharmaceutical and 12 psychotherapy studies. Using a relative risk measure to describe effect of pharmaceutical vs. psychological treatments for PTSD, pharmacological treatment was found to produce better outcomes than psychological treatment. SSRI agents’ sertraline and paroxetine are accepted therapies in PTSD Veterans Affairs clinical practice guidelines (VA, 2004). Martenyi, Brown and Caldwell (2007) found fluoxetine to have no significant effect on outcomes of PTSD.
The past five years located trials of olanzapine, aripiprazole and buproprion as adjunctive treatments to SSRI failures. All studies had small sample sizes and produced benefit by adding adjunctive treatments. Stellate ganglion block (Lipov, Navaie, Stedje-Larsen, Buririardt, Smitti, Shargi, & Hickey, 2012) was used in a trial of chronic severe PTSD and found improvement in CAPS scores from a mean of 67.8 to 35.3. Propanolol given acutely to soldiers burned during conflicts in OIF/OEF produced no significant difference to PTSD symptoms. Mithofer, Wagner, Mithoefer, Jerome and Doblin (2011) used MDMA to augment psychotherapy in 32 Veterans and had a 100% response rate at the second stage as compared to a 25% response rate in controls.

**Pharmacological Treatment of Depression in Military Members**

There were no studies found in the past five years specific to the treatment of depression with pharmaceutical intervention in the military population. Evidence for treatment of depression in this population was derived from research conducted in the civilian population. Six meta-analysis and five systematic reviews were found in the general population within the past five years. Rocha, Fuzikawa, Riera and Hara (2012) completed a meta-analysis of five RCT’s that compared combinations of anti-depressants to single anti-depressants and found that combinations were better than single agents for remission (RR 2.71) and response (RR 1.55). Cuipers, Van Straten, Schuurmans, Oppen, Hollon and Anersson (2010) studied 16 RCT’s including 2116 patients that compared various psychological treatments to pharmaceuticals. Among these were seven CBT, six interpersonal therapies, and eight others. Pharmaceutical therapy was found better than psychological therapies with a medium effect size (Cohen’s d=0.31, NNT 5.75). Cuipers et al. (2009) reviewed 25 RCT that added psychotherapy to pharmaceutical treatment and found improvement with the combination (effect size, d=0.31).
Specific antidepressants were studied in several meta-analysis and systematic reviews. Venlafaxine was compared to SSRI in 34 RCT examined by Nemeroff, Entusah, Benatta, Demitrack, Sloan and Thase (2008) demonstrating a 5.7% difference in remission rates in favor of venlafaxine with a number needed to treat (NNT) of 17. An NNT indicated the number of patients that would need to be treated in order to have one patient go into remission. Weinmann, Becker and Koesters (2008) and Scheuler, Koesters, Weisler, Grouven, Kromp, Kerekes, Kreis, Kaiser, Becker and Weinmann (2010) found similar results. A systematic review of comparison studies between mirtazapine and SSRI found mirtazapine achieved response rates faster than SSRI but similar remission rates overall (Machado & Einarson, 2010; Thase, Nierenberg, Vrijland, van Oers, Schutte, & Simmons, 2010; Watanabe, Omori, Nakagawa, Cipriani, Barbui, Churchill, & Furukawa, 2011). Ciprani, La Fieria, Furukama, Signoretti, Nakgawa, Churchill, McGuire and Barbui (2009) completed a systematic review of 59 RCT comparing sertraline to other SSRI antidepressants and found no significant difference.

**Complementary and Alternative Treatment for Posttraumatic Stress Disorder**

Complementary and alternative treatments (CAM) constitute a wide variety of treatments that are not traditional psychological or pharmaceutical treatments. In this literature review, 16 studies were located that met criteria within the past five years. Two systematic reviews, seven RCT’s, two qualitative and five other studies are reviewed. A systematic review of five small trials (Williams, Hagerty, Brasington, Clem, & Williams, 2011) found limited evidence of benefit for relaxation, mediation and breath training. Feinstein (2010) studied two RCT and six outcome studies in Veterans and found acupoint stimulation in conjunction with CBT-PE to produce added benefit in treatment of PTSD. Hypnosis with olfactory stimulus was studied by Abramowitz and Lichtenberg (2012) in an RCT and found benefit to PTSD improvement (IES-
R, F=7.14, p .01) and depression (BDI f=10.06, p.003) with decreased usage of medications. Healing touch, exercise, mindfulness training, mantrum meditation, Hatha yoga and internet-based stress management were all found to have benefit in small trials (Borman, Thorp, Wetherell, & Goishan, 2008; Jain, McMahon, Hasen, Kozub, Porter, King, & Guarneri, 2012; Leardman, Kelton, Smith, Littman, Boyko, Wells, & Smith, 2011; Stoller, Greuel, Cimini, Fowler, & Koomar, 2007; Williams, Hagerty, Brasington, Clem, & Williams, 2010). Spirituality in low to moderate levels was found protective for depression but not PTSD (Hourani, Williams, Forman-Hoffman, Lane, Weimer, & Bray, 2012). High levels of spirituality were found to be detrimental. Qualitative studies of music therapy demonstrated benefit in PTSD treatment (Bensimon, Amir, & Wolf, 2012). All CAM studies were limited by small sample sizes and lack of replication.

**Complementary and Alternative Treatment for Depression in Military Members**

A total of six studies that assessed the effect of complementary and alternative therapy on depression in military members were located. Of these studies, depression was usually a secondary rather than primary outcome assessed. There were one systematic review, two RCT’s, two quasi-experimental studies and one qualitative study.

A systematic review of CAM therapies (Williams, Giersch, McDuffe, Strauss, & Nagi, 2011) found acupuncture to be more beneficial for depression post-stroke than short term antidepressants. Hypnosis with olfactory stimulation improved BDI-II scores (Abramowitz & Lichtenberg, 2012). Healing touch, transcendental meditation and mindfulness training were beneficial in small studies (Borman et al., 2012; Jain et al., 2012; Owens, Walter, Chard, & Davis, 2012; Rosenthal, Groswald, Ross, & Rosenthal, 2011; Tan, Dao, Farmer, Sutherland, & Gervitz, 2011). Low to moderate spirituality provided a protective effect for depression whereas
high levels of spirituality were associated with more severe depression (Hourani et al., 2012). All studies were limited by small sample sizes and lack of replication.

**Treatment Programs for PTSD and Depression in the Military Screening**

Carlson, Kehle, Meis, Greer, Macdonald, Rutz, Sayer, Dobscha and Wilt (2011) completed a systematic review of 34 studies involving, but not exclusively, the Veteran population and found wide variance in diagnostic accuracy and definitions of treatment. Hoge, Auchterlonie & Milliken (2006) studied all returning Veterans from Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) between 2003 and 2004 and found that OIF Veterans had higher incidence of positive screens for PTSD. Gerrity et al. (2007) and Yano, Chaney, Campbell, Klap, Simon, Bonner, Lanto and Rubenstein, (2011) found co-morbid depression with PTSD in 60% of military members screened. Routine screening for depression in primary care of Veterans increased detection by 30% (Yackel, McKennan, & Fox-Deise, 2010).

**Barriers**

The culture of strength provided barriers to seeking care in 553 Marines with reasons cited as desire to be self-reliant, fear of command loss of trust, and negative impact on career (Momen, Strychacz, & Viirre, 2012). Stigma was cited as a barrier to care (Brown, Creel, Engel, Herrell, & Hoge, 2011; Hoerster, Malte, Imel, Ahmed, Hunt, & Jackupcak, 2012; Kim, Thomas, Wilk, Castro, & Hoge, 2010). Moving the mental health care outside of traditional care environments and recognition of one’s own problem reduced barriers to treatment engagement (Bryan & Morrow, 2011; Brown et al., 2011).

**Program Evaluations**

Ten program evaluations of extant programs within the military system were located in the literature within the past five years. Forbes, Lewis, Parslow, Hawthorne and Creamer (2008)
compared high and low intensity inpatient programs for treatment of PTSD between 1995 and 2008. High intensity programs were more effective than low intensity programs in reducing PTSD symptoms. Location of program did not affect outcome. Access to behavioral health was improved through co-location of behavioral health providers and primary care. Treatment was optimized by presence of behavioral health providers whenever primary care was open, co-location in same hallway and spending twenty minutes with the nurse practitioner or psychiatrist (Shiner, 2009). Universal screening with PTSD and depression scales in primary care with case management improved outcomes for depression and PTSD (Engel, Oxman, Yamamoto, Gould, Barry, Stewart, Kroenke, Williams, & Deitrich, 2008). A study of 224 patients at Veterans Administration (Oxman, Schulberg, Greenberg, Dietrich, Williams, Nutting, & Bruce, 2006) found fidelity of program implementation to produce improved outcomes in depression with the 3CM collaborative care program. Program fidelity was found to be correlated with improved outcomes (Brawer, Martelli, Pye, Manwaring, & Tierney, 2010).

Cigrang, Rauch, Avila, Bryan, Goodie, Hryshko-Mullen and Peterson (2011) studied outcomes in active duty military members after participation in a primary care-based integrated care program for PTSD and found a high dropout rate but among those who completed the program, more than 50% no longer met criteria for PTSD. Wells, Miller, Adler, Engel, Smith and Fairbank (2011) completed a review of the military program “Comprehensive Soldier Fitness” and surveyed 340,000 active duty military members. Results indicated that mental health visits increased from 10 - 16% within one year after engagement in program. Clark-Hitt, Smith and Broderick (2012) completed a qualitative study of active duty to elicit themes regarding acceptability of the program “Help a buddy take a knee.” Sources of messages must be credible and demonstrate an understanding of military culture. Providers must be combat
experienced, and gain respect and trust. Messages need to come from senior leadership and include content about those who received help, benefits, and signs of PTSD. Messages must be positive and focus on success stories.

Wells, Miller, Adler, Smith and Fairbank (2011) and Lester, McBride, Bliese and Adler (2011) suggested that studies to evaluate the comprehensive soldier fitness program are lacking. Morgan and Bibb (2011) and Brancu, Straits-Troster and Kudler (2011) evaluated the importance of military culture and collaboration with families and communities in building successful programs for military members and recommended consideration of the unique military culture of strength as an essential component of treatment program development.

**Models of Care within Military Mental Health**

Models of care located in the review of literature include collaborative care, integrated care, and patient-centered medical home models. Two RCT’s, four quasi-experimental and five descriptive studies were synthesized. Of these, three were integrated care models, four were collaborative care models and two were patient-centered medical home models.

Schnurr, Freidman, Oxman, Dietrich, Smiteh, Shiner, Forshay, Gui and Thurston (2011) completed a two-arm parallel RCT with 195 Veterans comparing collaborative care to TAU. Collaborative care patients filled medications, attended more appointments in shorter time intervals but did not differ from TAU in Hopkins depression scale or PTSD diagnostic scale. Engel et al. (2008) studied 4159 screens for depression and PTSD in a troop clinic. Identification of positive PHQ for depression was found in 404 patients and 69 engaged in collaborative care. A five-point difference in PHQ scores between collaborative care and TAU was present at eight weeks. Chan (2008) studied a program using the collaborative care model among Veterans with PTSD and comorbid depression. More medications were administered in the collaborative care
group but outcomes did not differ. Oxman et al. (2006) completed a RCT of 224 patients using 3CM collaborative care model vs. TAU and found high fidelity to implementation of the program as it was designed and this was associated with significant differences in response at three months.

The integrated care model was studied by Cigrang et al. (2011), Brawer et al. (2010), Bryan et al. (2012), Maguen, Cohen, G., Cohen, B., Lawhon, Marmar, & Seal (2010) and Morgan and Bibb (2011). Cigrang et al. (2011) studied 15 active duty integrated care model with BH embedded in primary care and provision of CPT with emotional processing. Fifty percent of completers no longer met criteria for PTSD. The dropout rate was large. Brawer et al. (2010) found integrated care increased access 391%, and decreased referrals to specialty mental health by 50%. Medication prescriptions for behavioral health medications decreased in variability. Bryan et al. (2012) found improved outcome scores. Maguen et al. (2010) and Morgan and Bibb both described implementation of integrated care model with close collaboration between providers and comprehensive patient assessment as components of integrated care.

Patient centered medical home models were found to improve communication between behavioral health and primary care providers. Care was population based with a goal of rapid problem identification and transfer of knowledge and skills from behavioral health provider to primary care provider through repetitive consultation with the goal of improving confidence and capability of primary care providers for behavioral health care. (Fickel, Parker, Yano, & Kirchner, 2007; Hunter & Goodie, 2011). Program evaluations measured only limited outcome measures and did not address fidelity, assessment of program coverage, bias, standardization of service delivery, accessibility, operation, or conformity to program design.
CHAPTER FOUR: RECOMMENDATIONS FOR EVIDENCE-BASED PRACTICE

Evidence-based practice is derived from a supportive base of research that demonstrates efficacy in controlled trials and ongoing effectiveness when studied in natural populations. After reviewing the literature regarding treatment of depression and treatment of posttraumatic stress disorder in the military population, the evidence was critiqued, subjected to evaluation to determine strength and quality of evidence using the ONS Levels of Evidence Scale and readiness for practice implementation using the ONS Weight of Evidence Classification. The following recommendations regarding treatment are presented, including screening for and barriers to treatment programs and models of care.

**Routine Screening for Depression and Posttraumatic Stress Disorder**

Routine screening for depression and posttraumatic stress disorder using standardized screening tools is recommended at least annually within primary care. Screening for mental health concerns is the first step in improving access to treatment through recognition of need for that care. Research demonstrated that when military members are able to answer questions about mental health care anonymously, they report higher incidence of mental health issues (Warner, Appenzeller, Griefer, Belenky, Breitbach, Parker, Warner, & Hoge, 2011). Effective screening methods must address this reluctance to report. Although the DOD currently emphasizes the acceptability of seeking care for mental health concerns, screening for mental health issues has yet to overcome reluctance to report, as military culture values strength and conformity. Active duty military members are concerned about the future of their careers, the reputation amongst their peers and superiors and the stigma associated with mental health care (Brown et al., 2011; Hoerster et al., 2012). Within the military, a lack of trust exists for mental health care, whether care is delivered face-to-face or by videoconferencing (Bryan & Morrow, 2011). Approaching
preventative mental health care from a culture of strength outside of the context of health care, however, improves trustworthiness and acceptability (Bryan & Morrow, 2011; Jones, Etherage, Harmon, & Okiishi, 2012; Warner, 2011). Despite lack of trust, military members and Veterans with higher levels of distress are more likely to seek mental health care (Stecker, Fortney, & Sherbourne, 2011).

Use of standardized screening tools as a routine part of primary health care is thought to decrease the stigma of reporting mental health concerns (Engle et al., 2008). To date, there was no research within the military population to confirm this assumption. Standardized self-report screening tools were employed in most of the research conducted in the military population but were limited by the reluctance to be forthcoming with mental health concerns. Common self-report screening tools used in mental health are the PCL for PTSD and the Beck Depression Inventory BDI for depression. One study found that a positive screen on the PCL predicted positive scores on the BDI (Gerrity et al., 2007). Clinician administered scales, such as the Clinician Administered PTSD scale (CAPS), post traumatic diagnostic scale, and Minnesota Multiphasic Personality Inventory (MMPI), are more standardized measurement instruments. Screening with the use of clinician administered scales had moderate support in the literature with studies ranging in rigor from RCT to qualitative design. Using the ONS weight of evidence scale, overall screening for depression and PTSD are rated as level 2; likely to be effective with evidence less well established than those recommended for practice. Clinician administered scales are preferred over self-report scales.

**Cognitive Behavioral Therapy for PTSD**

Cognitive behavioral therapy produced reliable improvement in military members and is recommended for treatment of PTSD (Cigrang et al., 2011; Goodie et al., 2011; Gray et al.,
Cognitive behavioral therapy is implemented in various forms. Amongst these forms are individual CBT, group CBT, couples CBT, virtual CBT and in vivo CBT. Individual CBT has a well-established research base demonstrating efficacy, but other forms are not as well established (Ougrin et al., 2011). Virtual reality prolonged exposure had some evidence of effectiveness in the OIF/OEF cohort of military members (Morland et al., 2011).

Chronic PTSD is difficult to resolve. Among active duty military members, operational tempo impacts the ability to conduct ongoing treatments over time possibly decreasing effectiveness of treatment and increasing the likelihood of chronicity. Early treatment for symptoms of PTSD may mitigate the tendency for PTSD to become chronic. Most Veterans with chronic PTSD, even with evidence-based treatment, do not lose the diagnosis of PTSD whereas those with short duration PTSD may do so. Most Veterans with chronic PTSD show improvement in symptomatology with effective CBT.

Adaptive disclosure, a strength-based CBT, is based upon the theory that combat trauma differs from other forms of trauma that might lead to PTSD (Gray et al., 2012). Combat trauma includes prolonged grief from traumatic loss and moral injury due to realities of war. Addressing these additional elements through imagined conversations with key persons assists with the emotional processing work of treatment. This novel intervention lends emphasis to understanding the military culture of strength and employing these cultural values in the provision of mental health care (Gray et al., 2012).
Essential elements in effective CBT included prolonged exposure, standardization of approach using a manual to guide therapy, homework, cognitive processing, emotional processing and psycho-education (Cigrang et al., 2011; Goodie et al., 2011; Gray et al., 2012; Lande et al., 2011; McClay et al., 2011, 2012; Powers et al., 2010; Rademaker et al., 2009; Rauch et al., 2009; Ready et al., 2008; Rizzo et al., 2009; Schnurr et al., 2007; Strachan et al., 2012, Tuerk et al., 2011; Tworus et al., 2010). Exposure may be in the form of imagination, proximal approach to situations that invoke traumatic memories, virtual reality exposures or gradual approach to remembering the primary traumatic event. Effective CBT duration varied but all treatment processes included homework that continued the exposure to the trauma in-between therapy sessions (Powers et al., 2010).

Most research had addressed individual CBT but group CBT added the dimension of group cohesion and social interaction which is often difficult for those with PTSD (Ready et al., 2008; Ready et al., 2012). Group CBT was supported by a paucity of research studies. Group CBT demonstrated improved outcomes over waitlist controls or usual care (Ready et al., 2012). Effect sizes for group CBT were less than effect size for individual CBT (Steenkamp et al., 2011). CBT including trauma exposure was recommended as a first line treatment in the practice guidelines of the American Psychiatric Association, International Society of Traumatic Stress Studies, and the VA/DOD clinical practice guidelines (Forbes et al., 2010; Foa, Keane, Friedman, & Cohen, 2009; Veterans Health Administration and Department of Defense, 2010). ONS levels of evidence contain many studies rated I-1 including well-conducted systematic reviews and meta-analysis and a few lower quality studies. Level of evidence for individual CBT in the treatment of PTSD is strong (Level I-1). Weight of evidence rated by the ONS Weight of Evidence scale is 1, recommended for practice. Levels of evidence for group and virtual CBT for
PTSD are moderate (I-3) and weight of evidence is level 4, effectiveness not established due to insufficient quantity and quality of studies (Eaton & Tipton, 2009; Hadorn, Baker, Hodges, & Hicks, 1996).

### Non-CBT Therapies for Treatment of PTSD

#### Eye Movement and Desensitization Reprocessing

Eye Movement and Desensitization Reprocessing (EMDR) was recommended as an alternative treatment for posttraumatic stress disorder in military members by the DOD, although outcomes differ between studies and sample sizes were small. EMDR is a form of cognitive behavioral therapy that uses exposure to traumatic memory accompanied by simultaneous focus on an external stimulus. EMDR is thought to assist in processing traumatic memories by desensitizing, reformulating associated thoughts and relieving physiological arousal associated with the traumatic memory. EMDR had been studied amongst various populations, demonstrating a moderate effect on diverse traumas (Bisson, 2009). One explanatory theory is that EMDR distracts by repetitive stimulus eye movement while exposed to traumatic memory. Some, however, question the necessity of the eye movement component of this treatment. ONS levels of evidence range from I-1 (meta-analysis and individual RCT) to level II-7 conflicting evidence or meta-analysis that shows a trend that does not reach significance (Hadorn et al., 1996). ONS weight of evidence category is 2; evidence is less well established than those that are recommended for practice.

#### Other Non-CBT Treatments for PTSD

The evidence-based psychotherapy for other non-CBT treatment of posttraumatic stress disorder in military members contained several well conducted trials without randomization, case studies and systematic reviews. These were reviewed in the data tables in Appendix B, Table B4.
Patients should be educated about the evidence-based treatment options and care should be provided by trained therapists. Overall, ONS level of evidence is moderately strong. ONS weight of evidence rating is 2; likely to be effective for which the evidence is less well established than those that are “recommended for practice” (Eaton & Tipton, 2009).

**Pharmacological Treatment of PTSD**

Pharmacological treatment of PTSD is a first line treatment alternative to psychotherapy that is well supported and recommended by the VA and DOD clinical practice guidelines (VA, 2010). Recommended treatments included SSRI, SNRI, mirtazapine, tricyclic antidepressants and the Monamine oxidase (MAO) inhibitor phenelzine (VA, 2010). Of SSRI’s, sertraline and paroxetine had the most evidence to support their efficacy (VA, 2010). Venlafaxine is preferred in the SNRI class. With meta-analysis and several RCT’s demonstrating evidence of effectiveness of pharmacological agents in the treatment of PTSD the ONS level of evidence is strong. ONS weight of evidence for treatment of PTSD with a pharmacological agent is rated 1; recommended for practice. This intervention has been demonstrated by strong evidence from rigorous studies and expectation of harms is outweighed by benefits (Tipton & Eaton, 2009).

**CBT Treatment for Depression**

There was insufficient research within the military population to determine if CBT is efficacious for treatment of depression in the military population. Studies from civilian populations were insufficient to determine effectiveness (Von Wolff, Holzel, Westphal, Harter, & Kriston, 2012). Level of evidence is I-2 (well-controlled, RCT with adequate sample) in two studies and I-3(well-designed trial without randomization) in the third study. ONS weight of evidence for CBT treatment of depression in military members is level 4; insufficient studies are
available to determine effectiveness. Effectiveness is not established and further research is needed (Tipton & Eaton, 2009).

**Non-CBT Treatment of Depression**

There was insufficient evidence to determine if non-CBT treatment is efficacious for treatment of depression in a military population. Research from civilian populations and from military populations with PTSD that use depression as a secondary outcome measure suggested that non-CBT may be effective in treatment of depression in military members. Levels of evidence were rated on the two studies located. One was rated I-2 (well-controlled RCT with adequate sample size) and one (I-3) a within group repeated measures design. ONS weight of evidence rating for non-CBT psychotherapy of depression in military members is 4; insufficient evidence is available to determine effectiveness. Effectiveness is not established as data are currently insufficient or of inadequate quality (Tipton & Eaton, 2009).

**Pharmacological Treatment of Depression**

Treatment of depression in the general population should include pharmacological therapy. Pharmacological treatment of depression for military members had not been studied sufficiently in isolation from PTSD. Pharmacological treatment of depression in military members is rated a level 4 on the ONS weight of evidence scale. Weight of evidence rated four indicates that data are either insufficient or of inadequate quality and effectiveness is not established (Tipton & Eaton, 2009).

**Complementary and Alternative Treatment for PTSD**

Complementary and alternative treatment methods are not recommended for first line treatment but may be employed as adjunctive therapy. Studies of healing touch, biofeedback, music therapy, hypnosis, internet-based stress management, exercise, mindfulness,
transcendental and mantra meditation, sensory enhanced yoga all demonstrated some effect on relief of symptoms of PTSD (Abramowitz et al., 2012; Bensimon et al., 2008, 2012; Borman et al., 2012; Feinstein et al., 2010; Harris et al., 2011; Hourani et al., 2012; Jain et al., 2012; Lande Williams, Francis, Gragnani, & Morin, 2010; Leardman et al., 2011; Rosenthal et al., 2011; Stolle et al., 2012; Tan et al., 2011: Williams et al., 2010, 2011). Each study demonstrated some effect, yet none were replicated. There was little evidence to support treatment for posttraumatic stress disorder. They may be used as an adjunctive therapy based on a balance of risk and benefit. Most studies of depression with CAM used depression as a secondary outcome measure along with co-morbid PTSD. CAM therapies all provided at least some evidence of efficacy, although studies are limited by lack of replication, control and standardized measures of PTSD and depression. Individual CAM therapies had studies that range from RCT to qualitative but only acupoint stimulation along with exposure had replication in research. CAM therapy for PTSD is rated 4 on the ONS weight of evidence scale due to insufficient supporting evidence. There is either inadequate research design or insufficient data to determine effectiveness (Tipton & Eaton, 2009).

**Complementary and Alternative Treatment for Depression**

There was insufficient evidence to recommend CAM therapy for depression in military members. Evidence from studies with co-morbid PTSD and in civilian populations suggested that CAM may provide added benefit when used with other therapies. The studies were sparse and lacked replication. Level of evidence in the studies ranges from RCT (I-2) to qualitative (III-8). The evidence is weak and CAM therapy for depression in military members is rated a 4 on the ONS weight of evidence scale. A rating of four indicates inadequate data or data of insufficient quality to determine effectiveness (Tipton & Eaton, 2009).
Models of Care

Collaborative Care and Integrated Care for PTSD

There was some evidence to recommend collaborative care and integrative care models for treatment of PTSD. Collaborative care studied in other populations had sufficient evidence to recommend its use for the general population. Initial studies done in the military population suggested that it would be effective but evidence of its effectiveness is limited. Levels of evidence in studies completed within the past five years are moderately strong (I-2 to III-8). According to the ONS weight of evidence scale, collaborative care is rated a level 4; insufficient evidence to recommend practice. Due to insufficient numbers of studies within the military population, effectiveness for collaborative care and integrated care in the treatment of PTSD has not been determined.

Collaborative and Integrative Care for Depression

There were some data to recommend integrative or collaborative care for depression in military members. Although these models of care have been well supported in the general population, evidence of efficacy among military populations was limited. Collaborative care should be considered for 6 to 12 months in the treatment of depression in military members (VA, 2009). There was limited evidence that collaborative care is more effective for PTSD than current models that encompass referral to specialty mental health care. Integrative care had limited evidence to support its efficacy but studies are ongoing. Levels of evidence are moderate. The ONS weight of evidence scale rating is 4, indicating that there is insufficient evidence to recommend adoption in practice as standard of care. A level four rating indicates that either there is insufficient data or the research quality is inadequate to determine effectiveness (Tipton & Eaton, 2009).
Patient Centered Medical Home Model of Care for Depression and PTSD

Currently, the leading model of care was the patient-centered medical home. Although early studies were favorable, there was insufficient research to recommend patient centered medical home models for either depression or PTSD in the military. ONS weight of evidence rating is 4 due to insufficient evidence. Effectiveness has not been established with research. Despite the lack of research, patient centered medical homes are becoming the standard process within military health care.

Treatment Programs

As of 2012, there were 212 active treatment programs for posttraumatic stress disorder, traumatic brain injury and depression in military populations (Weinick, 2013). Each of these programs differed between population served and methods used. RAND completed a comprehensive study to define gaps in access and quality of care for military members after deployment (Weinick, 2013). Findings suggested that although there were multitudes of active programs, gaps in access to care and implementation of evidence-based practice remain. Few programs had been evaluated for fidelity, process or outcomes. Current programs included integrated mental health within primary care, patient-centered medical home, collaborative care, intensity of care and comprehensive soldier fitness program among others.
Clinical practice guidelines must be based upon relevant research. Although the DOD has clinical practice guidelines in place for the treatment of depression and PTSD, the evidence-base upon which some of these guidelines are based lacks relevance to the current military population. Much of the research has been conducted with either civilian populations or in Veteran cohorts of conflicts that have occurred in the past. Current warriors operate in a different environment than that of wars before the war on terror that has been in place for the past decade.

The continuing rise in suicide points toward a gap in the services and suggests a gap in the clinical practice guidelines as currently implemented (Clifton, 2012). Whether this poor outcome is due to research conducted in populations other than that in which it is being applied or lack of effective implementation of guidelines is unknown. Evaluation of current programs is needed to determine if there are gaps in reach, implementation or fidelity to evidence-based treatment methods. Factors external to military mental health care, such as socioeconomic concerns, may also impact outcomes.

The reach of programs currently serving our military members may be short. All military members, active duty and Veterans, who need services, are likely not being reached, either due to barriers to engagement with care or lack of programmatic reach to the areas of need.

Diagnosis of PTSD is affected by differing criteria over time. As the DSM-V is released, it is likely that there will be new methods to diagnose PTSD that will take into account the unique form of PTSD, complex PTSD, arising from chronic stress and resulting in dissociative symptoms (Dlaenberg & Carlson, 2012). Research involving treatment methods for this yet to be defined form of PTSD will provide opportunities to better refine treatments for this complex disorder which may include dissociative intrusive auditory hallucinations in its symptomatology.
Support for the new diagnosis of Complex PTSD in the DSM-V is controversial, as some authors cite a lack of reliable measurements to determine the presence of the disease (Resick, Bovin, Calloway, Dick, King, Mitchell, & Wolf, 2012). The DSM-V may better define diagnostic criteria allowing development of more effective treatment methods that are more specific to subtypes of PTSD.

Primary care providers lack knowledge and comfort in treatment methods found to be successful for treatment of PTSD within the current guidelines, effectively limiting access to needed care (Brawer, Brugh, Martielli, O’Connor, Mastnak, Scherrer, & Day, 2011). Education of primary care providers in the techniques of effective treatment for PTSD and depression, as is the aim of the Patient Centered Medical Home model, may serve to improve access by transferring expertise from the behavioral health specialist to the primary care provider. However, gaps in knowledge of the best treatment methods for depression in military members are significant obstacles to providing an evidence based guideline for this treatment.

Gaps in Research

Significant gaps in research are present in the literature regarding treatment of PTSD and depression in military members. Given the Institute of Medicine (Frieden, 2012) report, the lack of program evaluation for treatment programs within the DOD is the most significant gap. Although the DOD currently has 211 separate treatment programs for the detection and treatment of depression, traumatic brain injury, and PTSD in military members, the Institute of Medicine (Frieden, 2012) states that military programs are not reaching all who need help and not keeping track of which programs are being used nor evaluating the effectiveness of these programs.

Current guidelines for treatment of depression in military members are derived from treatment outcome studies in non-military populations. Lack of research regarding treatment of
depression without PTSD specifically within this population may limit the effectiveness of
treatment methods currently employed in this population. In those studies addressing depression
treatment research, depression is a secondary outcome measure to PTSD. A gap in research for
depression without PTSD is present.

Replication of studies using virtual technology to improve reach of treatment programs is
lacking. There is limited research that incorporates the military culture of strength or that
addresses PTSD in its early stages. Effective methods to overcome reluctance to report mental
health concerns are lacking.

Limitations

Limitations of this practice inquiry derive from the quality and quantity of studies
available for critique and synthesis. Small sample sizes, different cohorts of military members
and Veterans in the same studies, use of self-report measures and lack of rigor in research design
are the most frequent studies found in the literature.

Small sample sizes in research trials are prominent in military population-based research.
Several authors point out sample size as a limitation to generalizability of the findings of their
research (Alvarez et al., 2011; Beidel et al., 2011; Cigrang et al., 2011; Calohan et al., 2010;
Carlson et al., 1998; Goodie et al., 2011; Gray, Schorr, Nash, Lebowicz, Amidon, Lansing,
Maglione, Lang, & Litz, 2012; Lande, Williams, Gragnani, & Tsai, 2012; McClay, Wood,
Webb-Murphy, Spira, Weiderhold, Pyne, & Weiderhold, 2011; Morland, Hynes, Mackintosh,
Resick, & Chard, 2011; Nacash et al., 2011; Ready et al., 2012; Reger, Holloway, Candy,
Rothbaum, Difede, Rizzo, & Gahm, 2011; Rizzo et al., 2009; Strachan et al., 2012; Tworus,
Syzamanzki, & Linicki, 2010). In addition to small sample size, unequal comparison
populations, heterogeneity and self-selection bias plague these studies (Ready et al., 2008; Ougrin, 2011; Chard, Schumm, Owens, & Cottingham, 2010; Bisson, 2009).

Studies often include different cohorts of Veterans and Veterans that have recent onset PTSD with those who have chronic PTSD. This clouds the ability to determine effectiveness of treatment modality.

Measures used in PTSD and depression studies often relied upon self-report. Military members are often likely to avoid reporting mental health issues (Momen et al., 2012; Warner et al., 2011). Outcome measures vary amongst studies. Statistical improvement is not the same as clinical improvement. Studies, in general, lack long term outcome, quality of life and functionality data.

Research design varies amongst studies in PTSD. While there are several RCT’s, the most common design is quasi-experimental using a pre-post within subjects design. This design does not eliminate the effect of time on the outcome, so attribution of cause is less clear. Several studies are post-hoc outcome studies without current measurement of treatment modality or randomization to condition (Yoder, Tuerk, Price, Grubaugh, Strachan, Myrick, & Acierno 2012; Tuerk, Yoder, & Grubaugh, 2011). Retrospective studies limit generalizability as well (Reger et al., 2011; McClay et al., 2010; Rademaker, Vermetten, & Kleber, 2009). In questionnaire studies, poor response rates limit the usefulness of the data (Greenberg et al., 2010).

**Program Evaluation**

Lack of program evaluations of treatment programs has been cited as a gap in military mental health care (Frieden, 2012). Program evaluations that have been completed have focused upon small numbers of outcome indicators. Comprehensive program evaluation not only addresses outcomes, but processes and fidelity of implementation. One type of program
evaluation that would be applicable to either new or recently developed programs within the military is the formative program evaluation. Formative evaluation is a type of program evaluation used earlier in the process of program implementation to assess program effectiveness and provide suggestions to improve the program (McDavid & Hawthorne, 2006). Formative evaluations can be thought of as evaluations for strengthening programs and improving performance and can be contrasted with summative evaluations in that the summative evaluation is utilized to determine if a program is still meeting the needs it was created for (McDavid & Hawthorne, 2006).

**Formative Evaluations**

Formative evaluations are carried out in a casual manner on an ongoing basis by program directors, but structured formative evaluation provides clear focus to evaluate the fidelity and effectiveness of a program in depth providing useful information to key stakeholders (McDavid & Hawthorne, 2006). The information provided by a formative evaluation is used to determine areas of fidelity violation, outcomes and impact of the current program processes. This information guides the stakeholders to focus on specific areas to improve fidelity and program outcomes.

Formative program evaluations can support the organization to develop and refine a decision making process that facilitates ongoing learning. Information gained by program evaluation, understanding and challenging underlying assumptions, frameworks and norms may promote, ‘double-loop’ learning. Double-loop learning takes the organization beyond simply detecting error to examination of the underlying policies and goals of the program. This double loop learning may lead to a culture of continuous quality improvement that supports ongoing improvement (Morgan, 2006).
In a program evaluation, after data is analyzed and gaps are identified in fidelity or process of program implementation, this information would be utilized to inform the stakeholders. Areas of improvement would be suggested and a follow-up plan developed in collaboration with stakeholders. Periodic program evaluation in conjunction with continuous quality improvement lends itself to improved program outcomes.

Each program evaluation will be determined by the context, stakeholders, organizational structure, service delivery and client flow. Understanding the essential evidence-based elements of successful treatment of depression and posttraumatic stress disorder allows the program evaluation to address whether all of these elements are present and identify gaps in service delivery. In order to address the complexity of posttraumatic stress disorder and depression within the military population, the process must address everything from screening and detection to reaching all those who need services, implementing comprehensive quality programs that provide all evidence-based therapies and evaluation of the program processes, fidelity and outcomes.

Models of Care

Research that addresses models of care in which treatment programs may be implemented is in its infancy. Collaborative care models are transforming into Patient Centered Medical Home models at the impetus of governmental incentives and with the goal of improving quality of care (McDonald, Chang, & Schultz, 2013). Research regarding outcomes of the models of care will be necessary to determine if the models are effective in reaching their goals.
Implications for Nursing Practice

In the current state of military force withdrawal, both civilian and military nurses will be caring for military members and Veterans. The military culture of strength and its accompanying reluctance to report mental health issues will impact the ability to detect silent mental health concerns. Nurses will have the best opportunity to interact closely with these military members and may impart a huge benefit to them through awareness of the problem and offering assistance to the patient. Awareness of evidence-based treatment practices will assist the nurse to advocate on behalf of the patient to assure best practices are provided in health care assuring quality and safety of care for our military members.

Nurses have the unique opportunity to improve the reach of behavioral health care to silent injuries of depression and PTSD through improving communication and establishing trust with patients. Nurses may foster confidence in confidentiality decreasing the barriers that currently prevent military members from engaging in care. By listening to the military member and eliciting the story of his or her health, rather than just impersonally processing a provider visit, the nurse can take a leading role in providing the climate and opportunity for the military member to be forthcoming. In this way concerns about sleep, relationships with intimate partners and family and difficulties with task management can be voiced providing clues to potential underlying issues with either depression or PTSD. Nurses are also key professionals to teach military members about behavioral activation skills that they can immediately deploy to help relieve symptoms of PTSD and thereby, gain the trust in their ability to improve.

Implications for the Doctor of Nursing Practice

As leaders in nursing care and providers of direct health care to patients, the DNP serves a pivotal role in assurance of safe and high quality care for patients. Awareness of the evidence
base for treatment practices allows the DNP to assure that best practices are followed. Awareness of the gaps in research points the DNP to conduct clinically-based research to improve the evidence base. Understanding the need for and process of program evaluation incites the DNP to assure that treatment programs within the DNP’s reach are evaluated to assure safety and quality of care for those served by the program.

**Conclusion**

This practice inquiry provided a critical review of extant literature on the screening, detection, treatment, programs and models of care addressing posttraumatic stress disorder and depression within the military population. A dearth of research exists for the active duty population and minimal evaluation of programs has been completed. Based on critical review, this practice inquiry provides a model for evaluation and an example of formative program evaluation for a currently used program for screening, detection and treatment of posttraumatic stress disorder and depression within the active duty population. Treatment programs, incorporating medication and CBT for PTSD and medication for depression, administered through a model of care that includes collaboration amongst primary care and behavioral health providers holds the most promise for effective treatment of depression and PTSD in military members. Further research is needed to determine best practices to improve detection and reduce barriers, optimal timing and duration of treatment and most effective medications for treatment of both depression and PTSD. Programs of care must be evaluated to determine their reach, processes, impact and effectiveness for treatment of our military population.
FORMATIVE PROGRAM EVALUATION

Process of Formative Program Evaluation

The process of a formative program evaluation is sequential. The assessment begins with description of the program goals, objectives and stakeholder interests in evaluation. Program theory includes impact theory, service utilization plan and organizational plan (Murray & Frenk, 2008; Rossi, Lipsey, & Freeman, 2004). The impact theory explicates the change expected by implementation of the program and described by the logic model as short and long term outcomes. The service utilization plan constitutes the plan to reach the target population, provide the services and disengage when services are no longer needed. The personnel, equipment, administration and support services used to implement the program constitute the organizational plan (Rossi et al., 2004). Through review of program documentation, pertinent literature and interviews with program stakeholders, the program goals and objectives are elucidated. Formative program evaluation purposes are twofold: evaluation of fidelity of delivery and impact of the program in meeting program goals. Assessment of program coverage, bias, and standardization of service delivery, accessibility, operation, and conformity to program design comprise essential components of a formative program evaluation. Comparison of implementation between sites implementing the same program enlightens diversity in implementation and outcomes and may assist in standardization (Rossi et al., 2004).

Logic Model Description

Using a formative program evaluation framework, the RESPECT-mil program could be analyzed for fidelity in implementation, barriers to implementation and outcomes. Stakeholder engagement, program description, electronic medical records, and stakeholder interview could be used to analyze program implementation, efficiency, effectiveness and barriers to
implementation. The RESPECT-Mil Logic Model provides a description of the program and the logic of its implementation. Implementation requires sequential program specific actions on the part of several stakeholders including front office staff, nurses, health care providers, case managers, and behavioral health specialists. Implementation requires electronic medical record support and training of providers. Without all of the implementation steps occurring in accordance with the program, the program cannot be delivered with fidelity and outcomes are likely to suffer.

Fidelity is the degree to which the program is delivered within its guidelines and includes the behaviors of multiple participants in a complex interaction. Fidelity of implementation is essential to determine if outcomes are related to the program as it is delivered. Effectiveness of the collaborative care model for depression care delivery is significantly influenced by the implementation of the program (Gilbody, Bower, Fletcher, Richards, & Sutton, 2006). Response and remission rates vary in response to the fidelity of implementation of the collaborative care model for depression on a continuum with high fidelity of implementation achieving significantly higher rates of both response and remission (Oxman, Schulberg, Greenberf, Dietrich, Williams, Nuttig, & Bruce, 2006).
**RESPECT-mil Logic Model**

**Situation:** Formative Program Evaluation of Re-engineering Systems for the Primary Care Treatment of Depression and PTSD in the Military (RESPECT-mil).

**Purpose:** The purpose of RESPECT-mil is to improve detection, engagement and successful treatment of active duty soldiers with depression and/or PTSD in a three component model of health care.

<table>
<thead>
<tr>
<th>Inputs</th>
<th>Outputs</th>
<th>Participation Output</th>
<th>Linking Construct</th>
<th>Outcomes Short</th>
<th>Outcomes Long</th>
</tr>
</thead>
<tbody>
<tr>
<td>First steps database software and computer support PCM BH psychiatry specialist</td>
<td>Training PCM, CF</td>
<td>Improved knowledge of RM program</td>
<td>Improved detection of depression</td>
<td>Improved engagement with treatment for PTSD depression</td>
<td>Improved compliance with treatment</td>
</tr>
<tr>
<td>Triage</td>
<td>Staff nurses do PCL and PHQ9 screens on patients</td>
<td>Number and percent of patients screened</td>
<td>Improved detection of PTSD</td>
<td>Improvement in resolution of PTSD as measured by PCL</td>
<td></td>
</tr>
<tr>
<td>Treatment by PCM</td>
<td>Pharmacologic treatment alone</td>
<td>Number RX</td>
<td>Treatment with antidepressants assists resolution of PTSD/depression</td>
<td>Improved Depression</td>
<td>Decrease Suicide Attempts and Completions among active duty and veterans</td>
</tr>
<tr>
<td>Care Facilitator support and collaboration between BH, PC, Pt.</td>
<td>RX plus</td>
<td>No, RX plus RM referral</td>
<td>RM assists in treatment improve compliance and outcome</td>
<td>Improved PCM care of depression and PTSD</td>
<td></td>
</tr>
<tr>
<td>Active Duty Soldiers Funding from Army psychological health and traumatic brain injury funds.</td>
<td>Rx plus BH referral</td>
<td>No RX plus BH referral</td>
<td>RX plus counseling improves outcome</td>
<td>BH specialty recommendation provided to PCM by CF</td>
<td>Improve cost effectiveness of mental health care delivery for veterans.</td>
</tr>
<tr>
<td>CI engages with soldier for telephonic follow-up</td>
<td>No RX with BH referral</td>
<td>No of Care Facilitator contacts with Pt.</td>
<td>BH care more effective for PTSD</td>
<td>Decreased Stigma of mental health care improved functionality of soldier</td>
<td></td>
</tr>
</tbody>
</table>

**Process of RESPECT-mil Program Evaluation**

The RESPECT-mil program formative evaluation could be conducted using the FIRSTSTEPS database (First-steps), monthly Standardized Program Situation Reports (SITREP), AHLTA electronic medical record (AHLTA EMR), Care-point database (Care-point), pharmacy records, and interviews with key stakeholders of the program. It is important to analyze reach or how well the program reaches those it is intended for. In this example, to
determine reach all patients of a particular clinic would be included in the analysis. Using both quantitative and qualitative analysis, the following indicators would be analyzed by aim.

**Determine degree of fidelity.**

The first aim is to analyze program process to determine degree of fidelity through evaluation of compliance with guideline implementation. Fidelity is the degree to which the program adheres to the methods and processes intended and described within the program.

**Staff compliance with screening.**

Staff compliance with screening will be determined by the number and percentage of total population screened with MEDCOM 774 at the Soldier Centered Care Clinic and compared to a benchmark of 100%. Staff compliance with screening will be determined by the number and percentage of total population that had screened positive. The number and percent of positive screens provided extended PHQ9 and PCL will be determined and compared to a benchmark of 100%.

**Primary care manager compliance with treatment and referral.**

Primary care manager (PCM) compliance with guidelines for treatment and referral to behavioral health or RESPECT-mil care facilitator will be determined by the number and percent of patients referred to Respect-mil and/or behavioral health, in accordance with the RM guidelines and compared to a benchmark of 100%. These scores will be stratified into three levels and aligned for each PCM and averaged for the Soldier Centered Care Clinic to determine the overall compliance with referral guidelines. The total number of referrals made from the total number of referrals that should have been made according to the RM guidelines generates the number of missed referrals from which a percent of compliance with referral guidelines can be identified. Each PCM can then be compared to the others for the percent compliance with
referral guidelines. The number and percent of patients prescribed medication in accordance with guidelines will be determined for each PCM and averaged for the Soldier Centered Care Clinic. The total number of patients that receive prescriptions for depression and/or PTSD will be subtracted from the total number of patients that should have received a prescription according to the RM program guidelines and a percentage of prescription compliance will be derived. The number and percent of patients that were not referred will be described and summarized. Number and percent of different reasons for non-referral will be described.

**Care facilitator compliance with promotion of treatment adherence, self-care measures and communication guidelines.**

Care facilitator compliance with guidelines for promotion of treatment adherence, self-care measures and communication with patients, behavioral health specialist and PCM will be determined by assigning a score to each of the records that identify compliance from First steps Management Modules. Scores will be assigned to: (1) phone contact, (2) counseling for treatment adherence, (3) recommendations for self-care, (4) communication with behavioral health specialist (BH specialist), and (5) communication with PCM. Based on the score, compliance will be judged as unsatisfactory (score less than 75% of maximum), satisfactory (score 75% of maximum), excellent (90-100% of maximum). The number and percent of patients referred to RM that receive care management follow-up for each month will be averaged over three months of study and compared to a benchmark of 100%. This average will be compared to the benchmark of one contact after entrance into RM within 7-10 days, and monthly contacts thereafter. Percent of compliance with actual number of contacts subtracted from expected number of contacts.
The number and percent of patient contacts initiated by Care Facilitator to the PCM for follow-up after conference call with BH specialist will be determined and compared to a benchmark of 100%. This average will be compared to the benchmark of one contact after entrance into RM within 7-10 days, and monthly contacts thereafter. Percent of compliance with actual number of contacts subtracted from expected number of contacts.

**Care facilitator compliance with self-care promotion.**

The number and percent of patient self-care promotion initiated by the Care Facilitator will be determined and compared to a benchmark of 100%.

**Determine barriers to implementation of RESPECT-mil.**

To analyze program process to determine barriers to implementation of the RESPECT-mil program focus groups with the different strata of stakeholders (nurses, medic, and providers) will be conducted and recorded. Two different focus groups will be conducted. The first focus group will include medics and nurses that work at the soldier centered clinic with the soldiers. This focus group will be conducted separately from the second focus group to decrease the perception of pressure by supervisors. The second focus group will include the health care providers of the soldier centered clinic. This focus group will include physicians, nurse practitioners and physician assistants. These nurses, medics and health care providers will be requested to participate in the focus groups but not required to do so. It is expected that since these health care team members are stakeholders within the Respect-mil program that they will be willing to participate in the focus groups.

Each focus group will meet for one time. Questions listed in Appendix R, Interview Guidelines, will be asked. The focus group discussion will be digitally recorded and transcribed verbatim. Transcripts will be analyzed for common themes. Thematic qualitative analytic
methodology will be used to determine themes that discuss barriers to implementation. A semantic analysis of the data set derived from interviews with both groups using an inductive approach to coding data will be conducted.

Following the outline of thematic analysis described by Braun and Clark (2006) data sets will be reviewed, initial coding generated, and codes gathered into themes. These themes will be reviewed individually followed by a thorough review of the entire data set and generation of a thematic map. Clear names and thematic definitions will be checked back against the data set for concordance with the data. An audit trail will be developed through the process of gathering data and completion of analysis including development of initial coding words and generation of themes. The program evaluator will look inward to identify bias within the evaluator that may influence coding and thematic analysis and confirm the interpretation of codes and themes with the chair of the practice inquiry committee. These measures will help to assure adequate rigor (Polit & Beck, 2012).

**Describe patient engagement in RESPECT-mil.**

To describe patient engagement in the RESPECT-mil program the length of time between first Medcom 774 screen and referral to RESPECT-mil or behavioral health program will be determined by identifying the first Medcom 774 screen with positive response and subtracting that date from the date of accepted referral to either RM or BH. The number and percent of appointments kept and prescriptions refilled will be determined and compared to the RM guidelines to determine percentage of compliance. The number and percentage of appointments kept by patients while enrolled in the RESPECT-mil program will be compared to the guidelines. The number and percentage of prescriptions filled by patients will be compared to number of prescriptions that should have been filled if taking medications as prescribed.
Disenrollment numbers, percentages and reasons.

To determine the number, percentage and reasons for disenrollment in the RESPECT-mil Program the FIRST-STEPS database will be used to summarize and categorize reasons and to calculate numbers and percentages.

To describe outcomes of the RESPECT-mil program.

*Compare pre and post referrals.* The number of referrals to behavioral health care before and after implementation of the program will be determined by determining the consults to behavioral health per provider for the three months prior to and the three months of the study. Each PCM number of consults will be averaged and Likelihood ratio conducted to compare likelihood of referrals to BH before and after RM.

**Number who reach clinically significant improvement.**

The number and percent of patients who reach clinically significant improvement within a three month timeframe will be described.

**Number of patients endorsing suicidal ideation pre and post implementation.**

The number of patients referred for suicidal ideation before and after program implementation will be analyzed with linear regression to determine if there are significant differences in number of patients referred before and after program implementation.

**Compare outcomes compared among depression, PTSD with and without TBI.**

The expected outcome of the RESPECT-mil program is a clinically significant improvement or remission of depression and clinically significant improvement in PTSD. Clinically-significant improvement for depression is defined by a greater than 50% reduction in scores on the PHQ-9. Clinically-significant improvement in PTSD is defined as a greater than 10 point decrease in scores on the PCL-17. Therefore, to evaluate outcomes of RESPECT-mil,
logistic regression will be used to determine the relative effect of various categorical and continuous factors (diagnosis- PTSD, depression, TBI; initial scores on PHQ-9 and PCL-17, age, time in program and type of treatment- behavioral health or medications or both) on a categorical outcome (Clinically-significant improvement). The outcome variable will be achievement of clinically-significant improvement and the predictor variables will be diagnosis (depression, TBI, PTSD), type of treatment (behavioral health, medications), length of time in RESPECT-mil program and initial scores on PHQ-9 and PCL-17. A model predicting the outcome based on the predictor variables will be determined.

Participants

All active duty soldiers who are enrolled at the particular clinic during the period of the study would be included in the study. Determining the percent of population reached by the program would be derived from the percent of the total population provided clinic services during the period of the study. It would be important to describe the population, including age, rank, location, and area of military specialty.

Data sources are outlined in the following table. The areas with check marks indicate the areas from which the data would be derived.
## Data Sources by Aim

<table>
<thead>
<tr>
<th>AIM</th>
<th>DATA ELEMENT</th>
<th>MEDCOM #74</th>
<th>FIRST STEPS DATABASE</th>
<th>AHLTA</th>
<th>SITREP DATABASE</th>
<th>CARE POINT DATABASE</th>
<th>PHARMACY RECORDS</th>
<th>STAKEHOLDER INTERVIEW</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>STAFF COMPLIANCE WITH INITIAL DEPRESSION/PTSD SCREENING</td>
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<td>NUMBER OF APPOINTMENTS KEPT FOR FOLLOWUP</td>
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<td>LENGTH OF TIME FROM RM ENTRANCE TO REMISSION</td>
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<td>4</td>
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<td>4</td>
<td>LENGTH OF TIME FROM RM ENTRANCE TO CLINICALLY SIGNIFICANT IMPROVEMENT DEPRESSION</td>
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<td>X</td>
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<td>4</td>
<td>LENGTH OF TIME FROM RM ENTRANCE TO CLINICALLY SIGNIFICANT IMPROVEMENT PTSD</td>
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<tr>
<td>4</td>
<td>LENGTH OF TIME FROM RM ENTRANCE TO CLINICALLY SIGNIFICANT IMPROVEMENT IN PTSD PLUS DEPRESSION</td>
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<td>X</td>
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<tr>
<td>4</td>
<td>LENGTH OF TIME FROM RM ENTRANCE TO CLINICALLY SIGNIFICANT IMPROVEMENT IN PTSD PLUS TRAUMATIC BRAIN INJURY</td>
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<td>X</td>
<td></td>
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<tr>
<td>4</td>
<td>LENGTH OF TIME FROM RM ENTRANCE TO CLINICALLY SIGNIFICANT IMPROVEMENT STRATIFIED BY INITIAL SCORES ON PHQ9 AND PCL</td>
<td>X</td>
<td>X</td>
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<tr>
<td>4</td>
<td>NUMBER OF PATIENTS WHO REACH CLINICALLY SIGNIFICANT IMPROVEMENT</td>
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APPENDIX B: LITERATURE REVIEW TABLES
<table>
<thead>
<tr>
<th>Number</th>
<th>Author</th>
<th>Date</th>
<th>Evidence Type</th>
<th>Sample/Setting</th>
<th>Measures/Methods</th>
<th>Results/Recommendations</th>
<th>Challenges to Scientific Rigor</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sipos</td>
<td>2012</td>
<td>Survey</td>
<td>307 AD 4 months after 12 month deployment, 37% E1-E4, 63% E5+, 46% 18-29, 87% male, mean deployments 2.2, length of service mean 9.9 yrs</td>
<td>Combat experience scale, preference Likert scale, PCL, PHQ, GAD-7 Europe medical command face-to-face vs. VTC interviews</td>
<td>Somewhat satisfied to satisfied (97% VTC, 85% face-to-face) majority who received VTC did not prefer VTC for future BH care (73%). No SD among MH scales and mode of screening. Stigma and barriers to care difference NS.</td>
<td>Low level of combat exposure in group survey done 4 months after initial screen</td>
<td>III-8 4</td>
</tr>
<tr>
<td>2</td>
<td>Gerrity</td>
<td>2007</td>
<td>Survey</td>
<td>398 VA PC pts., mean age 57,53% Vietnam vets</td>
<td>PCL-M, PHQ Validity of PCL to screen for depression based on 4-item PCL</td>
<td>70% of depressed patients (based on PHQ9) had a positive PCL-4 with a cut-off of trauma plus one or more symptoms on PCL-4</td>
<td>Secondary analysis of data. Did not use gold standard clinician administered scales</td>
<td>III-8 4</td>
</tr>
<tr>
<td>3</td>
<td>McCarthy</td>
<td>2012</td>
<td>Efficacy study</td>
<td>58402 (48920 enlisted), 15% female, two deployments, Air force including AD, reserve and National Guard screened with PDHRA</td>
<td>Structural model based on data theoretical derived factor analysis</td>
<td>Depression diagnosis more common among those with positive PCL PHQ specificity was 0.651 (n = 37 713); its specificity for PTSD was 0.744 (n = 119), and its sensitivity was 0.650 (n = 37 772). Support network conflict produced a large, positive, statistically significant effect on depression (b = 1.48; P ≤ .001) and trauma (b = 1.45; P ≤ .001). Other variables produced statistically significant direct effects on depression and trauma: Being shot (b = 0.77; P ≤ .001) and being exposed to a blast (b = 0.68; P ≤ .001) had a large, positive direct effect on trauma. Being involved in a vehicle crash also had a moderate, positive direct effect on depression (b = 0.38; P ≤ .001) and trauma (b = 0.40; P ≤ .001). TBI symptoms had a small, positive direct effect on depression (b = 0.12; P ≤ .001) and trauma (b = 0.17; P ≤ .001), no statistically significant relationship between the number of deployments and depression (b = −0.01; P = .017) or trauma (b = −0.004; P = .479).</td>
<td></td>
<td>III-8 4</td>
</tr>
</tbody>
</table>
4 King 2006 Survey telephonic 357 DOD-50% AD 50% NG, 75% male, gulf war registry, 97%, 69% 31-50 years, 76% white, 20% black, 75% Army 97% participation rate DRRI coefficient alpha .82 or higher correlated well with scores of PCL, Childhood trauma environment, social support and combat experience were highest predictors (t4.08,p.001; t5.39, p.001; t6.81,p.001) Development of instrument with studies reported. Preliminary testing III-8 4

5 Carlson 2011 SR Examined frequency of mTBI, and PTSD diagnosis 1107 articles, 749 met exclusion criteria-358 articles reviewed- 34 met inclusion criteria PubMed, PsycINFO REHABDATA Cochrane review terms “tbi and ptsd” None evaluated diagnostic accuracy or treatment effectiveness- frequency of mTBI/PTSD ranged from 0%-89%. OIF/OEF 5-7%. Wide variance in incidence with variance in diagnostic criteria and incidence with varying methodology of studies, aims, assessment methods. I-2 4

6 Hoge 2006 Descriptive study all returning OIF (222,620)/OEF (16,318) between May 2003-April 2004 Army and Marine 88% enlisted Population level screening for PSTD, depression other MH Referrals to MH attrition from military service 19.1% positive screen for MH problem (Iraq) 11.3% positive (Afghanistan) 8.5% positive from other locations 35% Iraq Vets accessed MH care within one year of redeployment from Iraq Descriptive study of self-report measure indicates higher rates of MH problems after Iraq then Afghanistan deployments and both higher than other areas in the world after referral to MH care with PDHA screen 50% attended referral visit III-8 4

7 Yano 2011 Pre-post within groups 10,929 Primary care patients at 10 VA centers 95% male, mean age 66 years Screen of all patients in primary care with 2-item PHQ 20.1% positive PHQ-2 screen 60% of positive PHQ-2 item screened patients had PHQ9 of 10 or more over 2/3 reported PTSD symptoms including re-experiencing, avoidance, hyper-vigilance, over 50% reported numbing/detachment Routine screening in primary care VA population yielded 20% positive PHQ and overall 12% MDD. II-4 2

8 Yackel 2010 Pre-post Military PCM clinic with 175 daily visits- family members older than 18 years Screen with PHQ-2 and if positive PHQ9 30% increase in detection of depression after institution of routine screening of family practice patients in a military primary care practice Implementation study not randomized determining efficacy of instituting a routine screen- unable to measure whether due to increased sensitivity of staff to depression or increased willingness to self-report by patients II-4
**TABLE B2. BARRIERS TO DETECTION**

<table>
<thead>
<tr>
<th>Number</th>
<th>Author</th>
<th>Design</th>
<th>Framework</th>
<th>Setting/Sample</th>
<th>Measures/Methods</th>
<th>Results/Recommendations</th>
<th>Challenges to Scientific Rigor</th>
<th>Rating</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Momen</td>
<td>2012</td>
<td>Survey</td>
<td>Barriers to seeking care among AD</td>
<td>Survey of combat stress reaction and barriers to seeking care</td>
<td>64% desire to solve own problem, 50% fear of command losing trust, 45% being treated differently, 37% lack of confidentiality and fear of negative effect on career. Theme: Self-reliance military culture, need to be perceived of as strong and distrust of BH providers.</td>
<td>Selection bias nonrandom sample. Took survey in a classroom- 99% participation rate.</td>
<td>III-6 2</td>
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<tr>
<td>2</td>
<td>Hoerster</td>
<td>2011</td>
<td>Survey</td>
<td>305 OIF/OEF Vets with PTSD, mean 30 yrs. age, 95% male, 75% white, 8% black</td>
<td>Association of receipt of care with barriers – access, stigma and trust</td>
<td>Stigma related barriers were most common. Gender, military branch, more severe ptsd and depression were associated with higher visits- only 25% of treatment seeking vets had adequate care- male were less likely to get adequate care</td>
<td>Study only assessed veterans actively seeking care and did not address all potential barriers. No randomization or control group</td>
<td>III-6 4</td>
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<tr>
<td>3</td>
<td>Brown</td>
<td>2011</td>
<td>Survey</td>
<td>577 Marines and soldiers, 97% male, 80% 20-29 yrs., 40% MH care within past year, 76% recognized current problem</td>
<td>Survey</td>
<td>Recognition of problem lower rank, perceived unit stigma and care within last year by MH provider was assoc. with higher care seeking. No relationship between perceived access barrier and interest</td>
<td>Cross-sectional self-report survey- no randomization,</td>
<td>III-6</td>
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<tr>
<td>4</td>
<td>Bryan</td>
<td>2011</td>
<td>Survey</td>
<td>165 AD who participated in a DEFED program of skills modules to promote increased resilience</td>
<td>Survey 5 30 minute modules Fatigue countermeasures, adrenaline management, mission focus, killing and mind focus</td>
<td>86% returned survey- increased trustworthiness of psychologist by not pathologizing combat culture- use strength based positive psychology, explore health promotion outside the office, recognize the growth in combat experience, skill training mindset</td>
<td>Survey</td>
<td>III-6</td>
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<tr>
<td>5</td>
<td>Stecker</td>
<td>2011</td>
<td>Within group pre-post design</td>
<td>27 National guard soldiers, 96% male, 31% PTSD&lt; 26% depressed, 69% alcohol abuse, mean age 32</td>
<td>Likert scale about beliefs regarding seeking MH care. CBT intervention to modify beliefs.</td>
<td>Belief about treatment did not change with intervention but intention to seek treatment significantly improved. 2.42 pre to 4.07 post, p &lt;.005</td>
<td>Intention to seek treatment does not mean that they will engage and may be due to trying to please. Sample was small and no standardized measures used.</td>
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<tr>
<td>#</td>
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<td>Year</td>
<td>Study Type</td>
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<td>6</td>
<td>Britt</td>
<td>2008</td>
<td>Survey</td>
<td>3648 soldiers, 97% male, 67% enlisted, 66% white, 23% black</td>
<td>Perceived stigma and barriers to care scale, work overload scale, PHQ and PCL. Barriers to care interacted with work overload to predict depression. Work overload contributed to barriers to seeking care.</td>
<td>Survey cross sectional, self-report-strength is anonymous survey.</td>
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<tr>
<td>7</td>
<td>Kim</td>
<td>2010</td>
<td>Cross sectional anonymous survey</td>
<td>10386 soldiers, 58% 18-24, 23% 25-29, 98% male, 68% white, 63% enlisted</td>
<td>PHQ, PCL questions about stigma. Those with any MH problem rates: AD 45% at 3 months, NG 33% at 3 months-stigma was higher in AD than NG-embarrassment 28%, ruin career 31%, lose confidence in me 59%, treat me differently 45%, - barriers-time off work and knowledge on getting an appointment highest barriers- 5% care sought with primary care MD, 10% with MH; NG sig more likely to use MH than AD at 3 months. 17% vs. 13% (p .05).</td>
<td>cross sectional, self-report-strength is anonymous</td>
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<tr>
<td>8</td>
<td>Lindley</td>
<td>2010</td>
<td>Retrospective outcome study</td>
<td>2684 AD soldiers referred due to positive PCL or PHQ scores to MH at VA Palo Alto PC/MH program, mean age 30.6%, female, 64% white, 36% married, 39% employed, BMI 28.8</td>
<td>Completing referrals and attending treatment was compared between Vietnam era and OIF/OEF era vets</td>
<td>Age, race, referral diagnosis and employment status were significantly different between the two was cohorts. Older age, white, retired, depressed were less likely to complete referral. Referral by MH after initial screen were more likely to attend treatment than referral by PC; PHQ and PCL were highly correlated in the 426 soldiers who completed both screens (r=.79, p.001)</td>
<td>Use of telephone for triage was less likely to result in acceptance of referral than in person. Acceptance of treatment referral was also dependent upon the clinic involved. This naturalistic study was not randomized or controlled-retrospective</td>
<td></td>
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<tr>
<td>9</td>
<td>Jones</td>
<td>2012</td>
<td>Retrospective review nonrandomized</td>
<td>518 AD Tripler, Hawaii, 2009, Ft Richardson, Alaska, and McChord</td>
<td>Compare attitudes and cost effectiveness of Telehealth in military MH screening at 3 cohorts using Video Teleconference</td>
<td>Over three cohorts’ preference was for in person screening (55%) and there was higher rate of referral from VTC (29.6% vs. 3.7%). Average cost per soldier was higher with VTC (49.3 vs. 57.3)</td>
<td>Convenience sample no quality control or fidelity measurements, cost comparison did not include the equipment purchase</td>
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<tr>
<td>10</td>
<td>Warner</td>
<td>2011</td>
<td>Survey</td>
<td>2500 infantry soldiers from one brigade-1712</td>
<td>PC-PTSD screen, PHQ2, PHQ9, suicidal questions-</td>
<td>Soldiers reported sig. higher rates of MH PTSD/depression symptoms on anonymous survey (anonymous-12.7%)-</td>
<td>Nonrandom sample, single brigade</td>
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</table>
|   |   |   | responders, 91% male, 56% 17-25 years, 53% deployed 1 or more times, 51% E1-E4, 40% E5-E9 Brooke AMC Georgia | anonymous survey completed after completed PDHA on redeployment. Being anonymous contributes greatly to willingness to report | Non-anonymous 4.2%)
Difference scores
Ptsd $\chi^2 48.95$, p.01
Depression $\chi^2 87.73$, p<.01 |   |
<table>
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<tbody>
<tr>
<td>10</td>
<td>Hoge</td>
<td>2008</td>
<td>QI project PC clinic at Fort Bragg NC. 15 FTE PC providers 4159 active duty patients</td>
<td>4159 screens of PTSD/ depression over 16 mos.- 10% comorbid PTSD/MDD. 7% PTSD, 79% depression</td>
<td>Measures: PHQ9 and PCL-17 Improved detection – but at 12 weeks no remission</td>
<td>48 AD had at least one phone call follow-up PHQ in 6-10 weeks after initiation. 21 AD had at least one telephone follow-up PCL in 6-10 weeks. 87% of PCP’s referred to Respect-Mil within 10 weeks.</td>
</tr>
<tr>
<td>Author</td>
<td>Evidence Type</td>
<td>Sample/Setting</td>
<td>Measures/Methods</td>
<td>Results/Recommendations</td>
<td>Challenges To Scientific Rigor</td>
<td>Rating</td>
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<tr>
<td>McClay</td>
<td>Parallel case series</td>
<td>10 AD soldiers Fallujah Iraq during conflict Mean age 25 years 100% male and enlisted</td>
<td>PCL Treated with therapy vs. virtual reality exposure</td>
<td>Both groups improved. VR PCL changed 54.8 to 29.5, therapy changed 48.8 to 23. NS between group difference</td>
<td>Small sample size with variability and lack of control that took place in real world of conflict</td>
<td>I-3</td>
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<tr>
<td>Gray</td>
<td>Uncontrolled</td>
<td>44 AD Camp Pendleton 42 male, 58% white, 73% 18-29 years</td>
<td>PCL-M, PHQ9, audit, PTGI, PTCI, imaginal exposure and CBT 6-90 minute sessions, using manual</td>
<td>PCL-M (t=5.27, p.001), PHQ (t=4.66, p.001), Audit (t=1.48, p .15), PTGI (t=4.13, p.001) PTGI (t=2.05, p.04) This method added combat grief and traumatic loss to CBT. Effective for PTSD, depression but not alcohol use disorder.</td>
<td>Small sample size lack of random assignment and control Group</td>
<td>I-3</td>
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<tr>
<td>Reger</td>
<td>Non-Randomized pre-post retrospective Study</td>
<td>24 AD soldiers Madigan 96% male Mean age 28.8, at least one deployment to OIF/OEF for all subjects</td>
<td>PCL-M 3D virtual Exposure representing traumatic event Manualized</td>
<td>PCL-M pre-post (t= 6.53, p.001) PTSD diagnosis post decreased by 14% of subjects</td>
<td>Retrospective Self-report measures Variance in number of treatments between subjects</td>
<td>I-3</td>
</tr>
<tr>
<td>McClay</td>
<td>Pre-post Quasi experimental</td>
<td>42 AD with PTSD 95% male Mean deployments 2.6 Service years 8.4</td>
<td>PCL Beck anxiety inventory PHQ9 Virtual reality exposure 12 sessions</td>
<td>PCL pre-post (d = 1.34, 95% CI .86-1.81, t = 5.92, p &lt;.001) PHQ9 pre-post (d=1.01, 95% CI 0.44-1.58, t= 3.69, p .002) BAI Pre-post (d= .56, 95% CI 0.6-1.91, t=3.67, p.003) Moderate effect on PCL and lesser on PHQ9. Large variance on BAI. All significant improvement No Randomization No comparison group</td>
<td>Variance of TAU. Small sample size, single nonblinded therapist, no protocol adherence measurement Large amount of variance in response to treatment with CI spread</td>
<td>I-3</td>
</tr>
<tr>
<td>McClay</td>
<td>RCT</td>
<td>10 AD soldiers assigned to TAU or VR graduated exposure 90% male, 100% enlisted 60% Navy Average deployments 3.3 8.8 VR sessions</td>
<td>CAPS Gradual virtual exposure with relaxation and biofeedback. Virtual Iraq or Afghanistan</td>
<td>70% VR treated had 30% reduction in CAPS Chi SQ difference between VR/TAU 6.74, p&lt;.01, 95%CI 1.18-8.72.</td>
<td>Variance of TAU. Small sample size, single nonblinded therapist, no protocol adherence measurement Large amount of variance in response to treatment with CI spread</td>
<td>I-2</td>
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<tr>
<td>Lande</td>
<td>Questionnaire</td>
<td>39 AD 85% male, 72% white, 65% married, 59% 21-30 years old</td>
<td>PCL Intensive outpatient treatment CBT</td>
<td>Pre-post PCL difference (t=3.68, p&lt;.001) PCL decreased from mean of 65 to 58.</td>
<td>Small sample size. A mean PCL of 58 is still high and diagnostic of PTSD</td>
<td>III-8</td>
</tr>
<tr>
<td>Rizzo</td>
<td>Survey</td>
<td>2 clusters 252 survey only, 290 survey after Battlemind training Army</td>
<td>PCL Battlemind training, group combat culture psychoeducation</td>
<td>ES of BM vs. TAU (ds=30) BM training had a weak effect on PCL scores</td>
<td>Survey No measurement of treatment fidelity No impact on stigma</td>
<td>III-8</td>
</tr>
<tr>
<td>Name</td>
<td>Design</td>
<td>Sample Details</td>
<td>Measured Outcomes</td>
<td>Reference Details</td>
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<tr>
<td>Klemanski 2012</td>
<td>Quasi Experimental</td>
<td>44 AD Fort Drum NY With or without PTSD</td>
<td>SCID, CAPS, CES, trauma life events scale Difficulties in emotional regulation scale BDI Compare scores on emotional dysregulation between those with and without PTSD PTSD had higher difficulties in emotional regulation scale scores and higher BDI scores</td>
<td>Theoretical study I-3 4</td>
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<tr>
<td>Monson 2012</td>
<td>RCT</td>
<td>Couple with one who had PTSD treatment vs. wait list Boston MA, Toronto Canada</td>
<td>CAPS, dyadic adjustment scale Conjoint CBT PTSD severity improved CAPS (-23.21, 95% CI -37 to -8). Intimate relationship improved Mean change 9.43, 95% CI .04-18.8</td>
<td>Well done study. III 8 4</td>
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<tr>
<td>Beidel 2011</td>
<td>RCT</td>
<td>35 chronic PTSD male Vietnam cohort NE VA med center</td>
<td>CAPS, PCL, QLQ Trauma management therapy vs. PE CAPS effects over time (F34.08, p&lt;.001), PCL-M (F6.72, p&lt;.01) No difference between treatment with PE vs. trauma mgt with PE</td>
<td>Chronic PTSD treatment resistant I-2 2</td>
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<tr>
<td>Ready 2008</td>
<td>Pre-post within group design</td>
<td>102 Vets Atlanta VA med center 91% Vietnam 45white, 53 black, mean age 54</td>
<td>CAPS Group-based PE 3 hours/day twice weekly for 16 weeks using manualized protocol CAPS sig change (F85.65, p&lt;.001) No quality of life or functional measurements PE outperformed TAU (Hedges g=1.08, SE=.20, 95% CI 0.69-1.46). Treatment with PE resulted in 86% improvement in PTSD symptoms</td>
<td>Study conducted by treating therapist concerns for bias, no fidelity to manual protocol measured no control group I-3 2</td>
<td></td>
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<tr>
<td>Powers 2010</td>
<td>Meta-analysis</td>
<td>13 RCT studies 675 subjects Imaginial and in vivo exposure to traumatic event or cues to evoke memory using manualized protocols</td>
<td>PE performed TAU (Hedges g=1.08, SE=.20, 95% CI 0.69-1.46). Treatment with PE resulted in 86% improvement in PTSD symptoms</td>
<td>No long term follow-up. No comparison to other treatment modalities I-1 1</td>
<td></td>
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<tr>
<td>Ougrin 2011</td>
<td>Meta-analysis</td>
<td>20 RCT comparing PE to CBT on anxiety between 1989 – 2010</td>
<td>5 RCT of CBT vs. PE for PTSD, CAPS, PTSD severity index, PTSD symptoms scale No statistical difference between PE and CBT (z=1.07, p=.28, 95% CI .69-1.11)</td>
<td>High risk of bias in original studies, no standardized quality assessment tools, small number of studies with small sample sizes I-1 1</td>
<td></td>
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<tr>
<td>Cigrang 2011</td>
<td>Pre-post within subjects design</td>
<td>12 AD OIF/OEF Brooke AMC, 12 males, mean age 39, 53% white, 20% Hispanic, 27% officers, 33% non-commissioned officers, 40% enlisted, deployed more than once PTSD scale PCL-M PHQ9 primary care model using emotional processing and PE 50% completers no longer met criteria for PTSD</td>
<td>PTSD scale PCL-M PHQ9 primary care model using emotional processing and PE 50% completers no longer met criteria for PTSD</td>
<td>Small sample size, no control group Small sample size, no control group I-3 4</td>
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<tr>
<td>Ready 2012</td>
<td>Pre-post within subjects</td>
<td>30 Vets with severe PTSD, 90% Vietnam, 2 Iraq, 1 Gulf War. 100% male, 47% disabled, mean age 57 years</td>
<td>PCL BDI Group imaginal exposure with homework twice weekly for 16 weeks PCL and BDI improved but BDI did not improve until 7 months after treatment completed. PCL decreased by 4.9 points (p&lt;.04) and BDI by 2.54 points at end of treatment and 3.71 points at 7 months follow-up</td>
<td>Select population with severe PTSD I-3 4</td>
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<tr>
<td>Yoder 2012</td>
<td>Post-hoc Nonrandom Effectiveness Study</td>
<td>61 OIF/OEF Vets, 34 Vietnam Vets, 17 Gulf War Vets 57% white, 92% male 60% disabled</td>
<td>PCL BDI PE 90 minutes manualized weekly sessions psychoeducation self- Time effect significant (F=227.91, p .01) and theater (F=8.12, p.01) with more chronic PTSD less likely to improve BDI sig for time but not theater</td>
<td>Post-hoc Non randomized Small sample size and small within group sample size, combination of treatment I-3 2</td>
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<td>Author</td>
<td>Year</td>
<td>Design</td>
<td>Samples</td>
<td>Details</td>
<td>Effect Sizes</td>
<td>Notes</td>
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<td>Tuerk</td>
<td>2011</td>
<td>Posthoc</td>
<td>Study within group</td>
<td>65 OIF/OEF Vets 11% female 39% black 57% white Modal age 27 67% disabled</td>
<td>PCL BDI 6 ninety minute session of PE and psychoeducation in vivo exposure, imaginal exposure, homework and SUDS</td>
<td>IIT PCL difference (t=8.02, p&lt;.001, d=1.19) IIT BDI difference (t=7.43, p&lt;.001, d = 1.25) No measurement of treatment fidelity Posthoc</td>
</tr>
<tr>
<td>Rauch</td>
<td>2009</td>
<td>Case series</td>
<td>Pre-post within group 2006-2007</td>
<td>10 Vets with PTSD, 80% male, VA Ann Arbor, mean age 39, 30% disabled 70% one other axis I disorder</td>
<td>PDS post traumatic diagnostic scale 7-10 sessions of 80 minutes of prolonged exposure</td>
<td>PDS difference score (t=4.69, p&lt;.01, d 2.19) Very small sample using self-report data No measurement of QOL</td>
</tr>
<tr>
<td>Tworus</td>
<td>2010</td>
<td>Single case study</td>
<td></td>
<td>30 year old AD from Iraq theater exposed to three traumas</td>
<td>Ability to return to soldier duties Treated with medications, and VR then in vivo exposure</td>
<td>Able to return to duty Single case study</td>
</tr>
<tr>
<td>Rizzo</td>
<td>2009</td>
<td>Within groups pre-post design</td>
<td></td>
<td>20 Iraq War Vets PTSD symptoms VR exposure</td>
<td>80% no longer met criteria for PTSD</td>
<td>Small sample size, no comparison</td>
</tr>
<tr>
<td>Goodie</td>
<td>2011</td>
<td>Within groups pre-post design</td>
<td></td>
<td>15 Vets,20% female, 53% white, 20% Hispanic, 27% black, 60% officer or NCO, 40% enlisted</td>
<td>PCL-M PHQ9 Beck suicidal ideation PE with emotional processing</td>
<td>50% completers no longer met criteria for PTSD Small sample size, no control no long term follow up</td>
</tr>
<tr>
<td>Rademark</td>
<td>2009</td>
<td>RCT</td>
<td></td>
<td>22 Vets chronic PTSD mean age 41 54% MDD</td>
<td>SCL-90 MMPI-II PE-based CRT, case management Psychoeducation</td>
<td>SCL-90 difference (t=5.45, p&lt;.001) MANOVA significant MMPI ( F=5.79, p.02) Small sample size chronic PTSD multimodal treatment without measures of fidelity</td>
</tr>
<tr>
<td>Strachan</td>
<td>2012</td>
<td>RCT</td>
<td></td>
<td>31 Vets with PTSD, S.E. Virginia 92% male 45% white Mean age 30 57% employed</td>
<td>BAI, CAPS, PCL, DSM-IV structured interview Behavioral activation with PE compared to TAU</td>
<td>PCL change score (p.002) BDI change score (p.003) BAI change score (p.010) No follow-up no functional status assessment</td>
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<tr>
<td>Schnurr</td>
<td>2007</td>
<td>RCT</td>
<td></td>
<td>277 Vets and 9 AD 100% female 9 VA Med Centers 2002-2004</td>
<td>CAPS PCL SCID PE vs. present centered therapy</td>
<td>PE reduced PTSD symptoms more than present centered therapy ( ES 0.27, p=0.03) PE group more likely to no longer meet criteria for PTSD (OR1.8, 95%CI 1.10-2.96, p.01) Well done study</td>
</tr>
<tr>
<td>Alvarez</td>
<td>2011</td>
<td>Retrospective with matched comparison group /quasi experimental cohort design</td>
<td></td>
<td>29 chronic Vets with PTSD</td>
<td>PCL BDI WHOQOL-BREF 14 session manualized trauma-focused CPT vs. TAU 15 session trauma focused psychoeducation</td>
<td>CPT treated were more likely to no longer meet criteria for PTSD (X²=7.48, p.006) improved (X²= 4.93, p.032) BDI was improved in CPT vs, TAU group (F=6.34, p .018) Retrospective but did provide clear indication of treatment condition. No long term follow-up</td>
</tr>
<tr>
<td>Morland</td>
<td>2010</td>
<td>RCT</td>
<td></td>
<td>13 Vets with combat-</td>
<td>PCL</td>
<td>Pre-post PCL difference (t=3.68, Mean PCL 58 is still high.</td>
</tr>
<tr>
<td>Year</td>
<td>Design</td>
<td>Sample Characteristics</td>
<td>Intervention</td>
<td>Primary Outcome</td>
<td>Interpretation</td>
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<tr>
<td>2011</td>
<td>Related PTSD in Hawaii</td>
<td>57% Hawaiian 15% black 66% Vietnam 36% OIF/OEF</td>
<td>Intensive outpatient CBT program</td>
<td>PCL dropped from mean 65 to mean 58</td>
<td>Statistical significance does not equal clinical improvement small sample size</td>
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<td>Macdonald 2011</td>
<td>RCT</td>
<td>93 Vets referred from VAMC mean age 54 years</td>
<td>PCL randomized to CPT vs. waitlist</td>
<td>Time x condition CPT vs. WL PCL greater improvement with b(WL) = -1.6, b(CPT) = -2.7, p&lt;0.01</td>
<td>Small effect of CPT over waitlist in this RCT. Sample with chronic PTSD</td>
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<td></td>
<td>Dunn 2007</td>
<td>RCT</td>
<td>67 Vets, 67% married 47-64% white 22-33% black 50% disabled 82% MDD</td>
<td>CAPS Self-control measurement for depression Brief symptom inventory BDI Treatment self-management vs. psychoeducation</td>
<td>Self-management initially appeared to be superior to psychoeducation but lots significance at follow-up. CAPS (F=2.17, ES .41) BDI (F=1.0, ES 0.29) SCQD (F 1.31, ES 0.37)</td>
<td>Lack of participation in study with small sample size.</td>
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<tr>
<td>Number</td>
<td>Author</td>
<td>Year</td>
<td>Design/Study type</td>
<td>Sample/Setting</td>
<td>Measures/Methods</td>
<td>Results/Recommendations/Themes</td>
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<td>1</td>
<td>Chard</td>
<td>2010</td>
<td>Cohort study</td>
<td>101 Vets with PTSD (51 OEF/OIF and 50 Vietnam) Mean age OIF/OEF=31 Vietnam=59, 88% white, 59-68% married</td>
<td>CAPS, PCL, BDI 12 session manualized Cognitive Processing Therapy treatment</td>
<td>Pretreatment PCL scores predicted post treatment scores ($r^2=.42$, $p&lt;.01$) OIF/OEF attended less sessions than Vietnam Veterans</td>
</tr>
<tr>
<td>2</td>
<td>Alvarez</td>
<td>2011</td>
<td>Retrospective quasi-experimental cohort design non-randomized</td>
<td>29 Vets with chronic PTSD</td>
<td>PCL, BDI, WHOQOL-BREF CPT cognitive processing therapy 14 session manualized trauma-focused TAU 15 session trauma focused group incl. psycho-education</td>
<td>CPT produced more classified as recovered on PCL ($x^2= 7.48$, $p&lt;.006$) improved ($x^2= 4.93$, $p&lt;.032$) and sig more likely to report a PCL &lt;50 than TAU ($x^2= 8.37$, $p&lt;.004$). BDI was sig improved in CPT vs TAU group ($F = 6.34$, $p&lt;.018$).</td>
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<td>3</td>
<td>Ougrin</td>
<td>2011</td>
<td>SR and Meta-analysis</td>
<td>20 RCT Cognitive processing therapy vs. CBT-PE</td>
<td>61 articles assessed and 20 RCT’s included 5 RCT of CPT vs. PE using CAPS, PSS and PTSD symptoms scale</td>
<td>Overall effect no statistical difference ($Z=1.07$, $p= .28$). CI (95%) .69-1.11</td>
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<td>4</td>
<td>Bisson</td>
<td>2009</td>
<td>33 RCTs –adults with traumatic stress</td>
<td>CBT, SM, Group CBT, EMDR</td>
<td>CAPS, stress, depression, anxiety symptoms</td>
<td>CBT SMD (standardized mean difference) -1.40 SM (vs TAU) -1.14 Group CBT -.72 EMDR (TAU) -1.51 EMDR, CBT, Group CBT and SM reduced PTSD symptoms. CBT and EMDR superior to SM.</td>
</tr>
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<td>5</td>
<td>Carlson</td>
<td>1998</td>
<td>RCT</td>
<td>35 combat Vets, age 45, 60% white, recently hospitalized for psych- Hawaii</td>
<td>CAPS, Clinician administered PTSD scale, Mississippi scale for combat related PTSD. EMDR, Biofeedback or TAU in 4 phases pre-treatment, treatment, post-treatment and 3 month follow-up</td>
<td>EMDR scores were impacted more than other treatment methods $t=3.79$, $p&lt;.001$, $d = 1.62$. on self-reported PTSD symptoms scale, depression and CAPS total frequency</td>
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<tr>
<td></td>
<td>Author</td>
<td>Year</td>
<td>Study Design</td>
<td>Database Search Methods</td>
<td>Evidence for Use of EMDR</td>
<td>Recommendation</td>
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<td>6</td>
<td>Albright</td>
<td>2010</td>
<td>SR of RCT and quasi-experimental studies</td>
<td>1987-2008 6 RCT and 3 Quasi-EXP</td>
<td>UNCLEAR evidence for use of EMDR due to: Very small sample sizes in each study, variance from EMDR protocols, unclear adherence, no blinding, assessor reliability unclear, treatment duration variance, lack of treatment fidelity</td>
<td>No well-designed RCT comparing exposure therapy or credible placebo controls – most rely on self-report scales. Most studies of EMDR were on Vietnam Vets and may differ greatly from OIF/OEF Vets. Recommend further studies with OIF/OEF Vets and Active Duty with larger sample sizes and more controlled manualized protocols</td>
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<tr>
<td>7</td>
<td>Siedler</td>
<td>2006</td>
<td>SR 1989-2005</td>
<td>8 studies with random assignment use of valid measures of PTSD, all adults, effect size calculations-comparison groups to CBT.</td>
<td>Global Effect Size calculated on average of global scale scores from all studies. EMDR composite ES 0.28. NO difference found comparing CBT to EMDR.</td>
<td>Heterogeneity and small sample sizes. Recommendation more research needed with larger sample sizes. Small number of studies available to complete SR. Recommend either CBT or EMDR for PTSD treatment.</td>
</tr>
<tr>
<td>8</td>
<td>Russell</td>
<td>2006</td>
<td>Case study</td>
<td>4 AD IRAQ with severe distress acute SCI, Impact event scale, subjective distress scale MDR 8 phase treatment- one session provided</td>
<td>All 4 had improved on the SCI, IES and SUDS scales</td>
<td>Pilot study using one session of EMDR in acute setting- four subjects- No recommendations can be made due to small sample size, unique environment and no control condition</td>
</tr>
<tr>
<td>9</td>
<td>Ho</td>
<td>2012</td>
<td>MA</td>
<td>Medline, psychINFO, Elsohost PsyC articles- total 227 subjects (111 CBT, 116 EMDR) mean age 36, IES, CAPS, PTSD symptom scale SCL-90, SUDS 8 studies met inclusion criteria based on Foa gold standards- all were randomized, blinded and manualized. Used reliable measures and measured treatment adherence</td>
<td>Mean difference effect for PTSD between EMDR and CBT was small (Hedges g=.23) with EMDR producing a faster response and minimal heterogeneity present. Mean difference effect size for MDD was moderate (g=.633, p.001) favoring CBT with moderate heterogeneity. Difference in homework time was significant with CBT mean 23 hours and EMDR 2.6 hours. Effect size of homework showed that homework was not necessary for EMDR to achieve its effect</td>
<td>There were no sig differences in efficacy between CBT and EMDR. Both were effective in PTSD. Recommend either CBT plus homework or EMDR for PTSD.</td>
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<tr>
<td>10</td>
<td>Nijdam</td>
<td>2012</td>
<td>RCT</td>
<td>Center for Psychological Trauma Amsterdam 2003-2009- 140 civilian survivors of trauma IES-R Weekly sessions of either EMDR or brief eclectic therapy (BET)</td>
<td>Treatment fidelity 78-81% of desired elements. Both treatments were effective but EMDR was effective faster. With a significant difference in response pattern ( t=3.49, p&lt;.005)</td>
<td>EMDR may have faster response rates and be more time efficient. However, large drop-out rates (50 total lost from 2nd assessment) variance in number of BET sessions.</td>
</tr>
<tr>
<td>Study ID</td>
<td>Authors</td>
<td>Year</td>
<td>Design</td>
<td>Sample Size</td>
<td>Diagnosis</td>
<td>Treatment</td>
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<tr>
<td>10</td>
<td>Van der Kolk</td>
<td>2006</td>
<td>RCT</td>
<td>88 patients with PTSD</td>
<td>83% female, mean age 36, 67% white, 13 years since trauma</td>
<td>CAPS, SCID, BDI</td>
</tr>
<tr>
<td>11</td>
<td>Forbes</td>
<td>2008</td>
<td>Pilot study quasi experimental pre-post design delayed intervention control group</td>
<td>National Guard members post deployment</td>
<td>63 treatment/ 81 control mean age 30 years, 98% male, 94% white, 59% married</td>
<td>PDHRA, PHQ9, PCL, GAD7 panic screen</td>
</tr>
<tr>
<td>12</td>
<td>Adler</td>
<td>2009</td>
<td>RCT</td>
<td>2297 Active duty 95% male 72% combat soldiers 60% enlisted</td>
<td>100% Iraq conflict</td>
<td>SUDS, Battlemind training vs. treatment as usual 26 sessions 50 minutes of psychoeducation and discussion</td>
</tr>
<tr>
<td>13</td>
<td>Hertlein</td>
<td>2004</td>
<td>SR Synthesis</td>
<td>16 EMDR studies with sample size of 2-105 subjects. Small per cell sample sizes between 1997-2003</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Gray</td>
<td>2012</td>
<td>Pilot study RCT</td>
<td>44 active duty Marines and Navy at Camp Pendleton</td>
<td>42/44 male, 58% white 87% 18-39 yrs. 75% enlisted</td>
<td>PCL, PHQ9, AUDIT, post traumatic cognitions and growth inventories Adaptive disclosure using elements of CPT, PE and packaged to address life-threat trauma, loss and moral injury</td>
</tr>
<tr>
<td>15</td>
<td>MacDonald</td>
<td>2011</td>
<td>RCT</td>
<td>60 Vets 90% male, 8% nonwhite, 71%</td>
<td></td>
<td>CAPS, PCL-M CPT 12 session</td>
</tr>
<tr>
<td>Study</td>
<td>Year</td>
<td>Design</td>
<td>Sample</td>
<td>Measures</td>
<td>Effect</td>
<td>Summary</td>
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<tr>
<td>16</td>
<td>Forbes 2012</td>
<td>RCT</td>
<td>59 Veterans 53 years, 100% white, 62-78% married, 66% Vietnam, 38% anti-depressant use</td>
<td>CAPS, PCL, BDI, state anxiety, post traumatic cognition, dyadic adjustment, anger scale</td>
<td>Medium ES seen for overall PCL (.29) and avoidance (.27) but not hyperarousal</td>
<td>Faster improvement. Self-report measures.</td>
</tr>
<tr>
<td>17</td>
<td>Rademaker 2009</td>
<td>Retrospective within group pre-post design</td>
<td>22 vets chronic PTSD, mean age 41, 54.5% comorbid depression</td>
<td>CBT-PE: case management, psycho-education</td>
<td>Sig decrease in SCL-90 T = 5.45, p &lt; .001</td>
<td>Retrospective, small sample size with chronic PTSD</td>
</tr>
<tr>
<td>18</td>
<td>Greenberg 2010</td>
<td>Cluster RCT</td>
<td>1980 British sailors randomized by vessel, 47% &lt; age 25, 88% male, 49% married, 65% Jr. NCO</td>
<td>General health questionnaire, PCL Trauma-risk management peer support program</td>
<td>22% completed the surveys. Variable number of traumatic incidences for each vessel. No improvement in psychological health</td>
<td>Poor survey completion rate, limited exposure to trauma</td>
</tr>
<tr>
<td>19</td>
<td>Schnurr 2007</td>
<td>RCT</td>
<td>277 vets and 9 AD females from 9 VA med centers in 2002-2004</td>
<td>CAPS, PCL, SCID CBT-PE vs. present centered therapy</td>
<td>PE reduced PTSD more than comparison (effect size, .27, p=.03). PE group more likely to no longer meet criteria for PTSD than comparison (OR 1.8, 95% CI 1.10-2.96, p .01).</td>
<td>Adequate sample size. Used some self-report measures. No measurement of fidelity</td>
</tr>
<tr>
<td>Number</td>
<td>Author</td>
<td>Date</td>
<td>Evidence Type</td>
<td>Sample/Setting</td>
<td>Measures/Methods</td>
<td>Results/Recommendations</td>
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<tr>
<td>1</td>
<td>Calohan</td>
<td>2010</td>
<td>Case Report</td>
<td>Active duty 13 soldiers, 11 males, age 24-30</td>
<td>Prazosin for nightmares- Clinical global impression of change scale, CAPS</td>
<td>Prazosin for nightmares- Clinical global impression of change scale, CAPS</td>
</tr>
<tr>
<td>2</td>
<td>German</td>
<td>2012</td>
<td>RCT</td>
<td>50 vets, mean age 40 yrs., chronic sleep disturbance, recruited 2006-2010.</td>
<td>57 randomized to either behavioral sleep intervention, placebo or prazosin</td>
<td>Sleep questionnaires, sleep diary, nightmares</td>
</tr>
<tr>
<td>3</td>
<td>Golier</td>
<td>2012</td>
<td>RCT, double blinded pilot study</td>
<td>8 male vets with chronic ptsd, 48.8 yrs, 12.5% white, 75% black, 4 Vietnam and 4 OIF vets</td>
<td>CAPs, SCID, BDI PCL 600 mg mifepristone or placebo daily for one week</td>
<td>Sig improvement in CAPS score at one month in treatment vs. placebo t= .425(p.047)</td>
</tr>
<tr>
<td>4</td>
<td>Krystal</td>
<td>2011</td>
<td>RCT</td>
<td>247 veterans 25% OIF/OEF, 73% Vietnam/Korea, 83% disabled, mean 54 years, 96% male, 69% white, 18% black</td>
<td>247 veterans 25% OIF/OEF, 73% Vietnam/Korea, 83% disabled, mean 54 years, 96% male, 69% white, 18% black CAPS, CGI (clinical global impression scale), Montgomery-Asberg Depression rating scale</td>
<td>No significant difference on CAPS score Difference score 3.74, 95% CI - .086-8.35, t= 1.6, p.11).</td>
</tr>
<tr>
<td>5</td>
<td>Stewart</td>
<td>2009</td>
<td>MA</td>
<td>13 pharmacy and 12 psychotherapy studies</td>
<td>Several outcomes</td>
<td>Pharmacological treatment efficacy for ptsd greater than psychological</td>
</tr>
<tr>
<td>6</td>
<td>Stein</td>
<td>2002</td>
<td>RCT</td>
<td>19 PTSD pts. VA San Diego chronic military-related PTSD that had failed 12 weeks SSRI treatment – augmentation with olanzapine study</td>
<td>CAPS, CES-D, Clinical global impression scale-SSRI failure patients randomized to augmentation with olanzapine vs. placebo for 8 weeks</td>
<td>At 15 mg olanzapine, CAPS difference score (placebo vs. TX) t=2.21, p&lt;.05, sleep effect t=3.07, p .01 and CES-D t = 2.49, p&lt;.03 Small sample size treatment time was short.</td>
</tr>
<tr>
<td>7</td>
<td>Becker</td>
<td>2007</td>
<td>RCT</td>
<td>30 PTSD pts. who were already taking SSRI-mean age 50 yrs, 79% male 79% veteran, 71% black</td>
<td>CAPS, BDI Randomized to bupropion vs. placebo in addition to med already taking</td>
<td>Significant effect of bupropion effect size CAPS - .22, BDI .05</td>
</tr>
<tr>
<td>No.</td>
<td>Author</td>
<td>Year</td>
<td>Study Type</td>
<td>Sample Description</td>
<td>Treatment</td>
<td>Key Findings</td>
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<td>8</td>
<td>Davis</td>
<td>2005</td>
<td>Retrospective chart review</td>
<td>50 PTSD chronic, Tuscaloosa, mean age 55,99% male, 50% combat vets</td>
<td>CGI scale Mean divalproex 1000 mg day</td>
<td>CGI- scale change score significant T= -6.01, p &lt;.001</td>
</tr>
<tr>
<td>9</td>
<td>Lipov</td>
<td>2012</td>
<td>Case series</td>
<td>8 vets chronic ptsd 88% male, 100% white, 43.4 yrs., at least 4 yrs. of ptsd</td>
<td>PCL Stellate ganglion block</td>
<td>75% reduced PCL scores significantly The mean pre-SGB treatment severity PCL-M score was 67.8 (range 55-79), while the mean post-SGB treatment severity score was 35.3 (range 21-63). Among patients who received only one SGB, statistically significant improvements (p &lt; 0.05)</td>
</tr>
<tr>
<td>10</td>
<td>Deniz</td>
<td>2011</td>
<td>Retrospective chart review</td>
<td>27 male Vets convenience sample. Chronic PTSD and MDD Ontario Canada</td>
<td>CAPS, PHQ, BDI, SF- 36. 12 week treatment of adjunctive aripiprazole treatment with average dose of 12.4 mg</td>
<td>PCL decreased form 56.11 (SD 12.66) to 46.85 (SD 13.53). At 3 months. BDI 30.44 to 20.67 at 3 months. 19% responders (MDD) with total BDI &gt;50% reduced.</td>
</tr>
<tr>
<td>11</td>
<td>McGhee</td>
<td>2009</td>
<td>Retrospective effectiveness study</td>
<td>64 burned soldiers of OIF/OEF, mean age 26, mean injury score differed between groups- propranolol group = 22, no propranolol= 27</td>
<td>PCL</td>
<td>No significant difference in PTSD scores in those who did or did not receive propranolol x2= p.785. Spearman’s correlation between ptsd and propranolol r=.64</td>
</tr>
<tr>
<td>12</td>
<td>Mithoefer</td>
<td>2011</td>
<td>RCT of psychotherapy with and without MDMA</td>
<td>32 Vets, mean age 40 yrs., 85% male, 35% married, 100% white chronic treatment resistant PTSD</td>
<td>CAPS Use of MDMA to facilitate psychotherapy</td>
<td>CAPS improved Sig. more in MDMA group vs. control. (F=7.173, p0.015).</td>
</tr>
<tr>
<td>13</td>
<td>Richardson</td>
<td>2011</td>
<td>Retrospective Chart review</td>
<td>27 Vets with MDD and PTSD 2009-2010 cohort Chronic population</td>
<td>PCL, BDI Aripiprazole augmentation 12 week open label flexible</td>
<td>37% responders (PCL decreased by 20%) 19% responders (BDI decrease 50%)</td>
</tr>
</tbody>
</table>
APPENDIX C: TREATMENT OF DEPRESSION IN MILITARY MEMBERS
<table>
<thead>
<tr>
<th>Number</th>
<th>Author</th>
<th>Date</th>
<th>Evidence Type</th>
<th>Sample/Setting</th>
<th>Measures/Methods</th>
<th>Results/Recommendations</th>
<th>Challenges to Scientific Rigor</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Karlin</td>
<td>2012</td>
<td>Pre-post within group</td>
<td>356 Veterans with depression 70% male, 72% white 12% black mean age 52 years</td>
<td>BDI-II WHO QOL-BREF method CPT-D standardized manualized program for depression</td>
<td>BDI-II decreased from 27.8 to 17, ( R^2 = -14.6, p &lt; .001 )</td>
<td>Nonrandomized convenience sample study designed to detect the effect of training on therapists and secondary outcome was patient depression</td>
<td>II-4 2</td>
</tr>
<tr>
<td>2</td>
<td>Mohr</td>
<td>2011</td>
<td>RCT</td>
<td>85 Veterans with depression and no PTSD mean age 55.9 years 90% male, 78.8% white, mean education 14.7 years</td>
<td>HamD, PHQ9</td>
<td>No significant difference between in-person and over the phone treatment. Mean effect for time HamD (F=11.04, p=.001). PHQ9 (F=.27, p&lt;.001) No effects of treatment were present, HamD (F=3.29, p.07) and PHQ9 (F =.27, p .61)</td>
<td>Fidelity was measured and patients were randomized. Study selected for absence of PTSD. Sample limited to English speaking and mean age of 55.9 limits generalizability</td>
<td>I-2 2</td>
</tr>
<tr>
<td>3</td>
<td>Ready</td>
<td>2012</td>
<td>Pre-post within group</td>
<td>30 Veterans with severe PTSD 90% Vietnam Vets 47% disabled mean age 57 yrs. All divorced</td>
<td>PCL, BDI Group sessions twice weekly for 16 wk developing group cohesion and exposure</td>
<td>PCL and BDI scores improved significantly but BDI not for 7 months. After treatment completed PCL overall decreased by 4.9 (p&lt;.04) and BDI by 2.54 (ns) at end of treatment. BDI decreased by 3.7 at 7 months (p&lt;.04)</td>
<td>Very select population of severe PTSD and depression. Decreases generalizability. No measurement of program fidelity</td>
<td>II-3 4</td>
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<tr>
<td>Number</td>
<td>Author</td>
<td>Date</td>
<td>Evidence Type</td>
<td>Sample/Setting</td>
<td>Measures/Methods</td>
<td>Results/Recommendations</td>
<td>Challenges to Scientific Rigor</td>
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<td>1</td>
<td>Strachan</td>
<td>2012</td>
<td>RCT</td>
<td>31 Veterans with PTSD, in Southeast VA. 92% male, 45% white, mean 30 years 57% employed</td>
<td>Beck anxiety inventory, CAPS, PCL, DSM-IV interview CBT-PE with behavioral activation compared to usual treatment</td>
<td>PCL change score (p.002) BDI change score (p.003) BAI change score (p.010)</td>
<td>Small sample size, no blinding chronic population</td>
<td>I-3 4</td>
</tr>
<tr>
<td>2</td>
<td>Jones</td>
<td>2008</td>
<td>Pre-post within group</td>
<td>326 outpatient active duty in Okinawa 70% male mean age 22 62% Marine 33% Navy</td>
<td>BDI 1 week intensive psycho-education classes with relaxation, self-awareness emotional regulation interpersonal effectiveness and resilience</td>
<td>BDI significantly improved BDI-II (t=16.31, p&lt;.001)</td>
<td>Non randomized not blinded no control group</td>
<td>II-4</td>
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<tr>
<td>Number</td>
<td>Author</td>
<td>Date</td>
<td>Evidence Type</td>
<td>Sample/Setting</td>
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<td>Challenges to Scientific Rigor</td>
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<td>1</td>
<td>Rocha</td>
<td>2012</td>
<td>MA and SR</td>
<td>Adult outpatients, MDD, 18-65 years America</td>
<td>Response on depression scale Combination of antidepressant compared to single anti-depressant</td>
<td>3662 studies retrieved- 5 met criteria for Inclusion – al 5 had moderate risk of bias. Antidepressant combination better than single agent for remission (RR 2.71,95% CI 1.69-4.35) and response (RR 1.55, 95% CI 1.21-1.97)</td>
<td>All studies were short term, little data of tolerability, may have publication bias.</td>
<td>1-1</td>
</tr>
<tr>
<td>2</td>
<td>Cuijpers</td>
<td>2010</td>
<td>MA</td>
<td>16 RCT</td>
<td>16 studies with 2116 patients 21 psychological treatments 7-CBT, 6-interpersonal, 8-other</td>
<td>Mean effect size d = .23 compare psych therapy to TAU. Funnel plot did not reveal publication bias. Compare psych vs. to meds, mean effect d=-.31, (95% CI: -.53 to -.09) superior effect of pharmacotherapy (p&lt;.001), NNT 5.75, moderate heterogeneity- meds alone vs. combination of meds and therapy favored combined (d=.23, 95% CI -0.1 to -0.47, p=.01). NNT 7.69.</td>
<td>No of studies avail for comparison is small- difference between studies - increased heterogeneity, not clear if patients had been treated unsuccessfully prior to study</td>
<td>1-1</td>
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<tr>
<td>3</td>
<td>Nemeroff</td>
<td>2008</td>
<td>MA</td>
<td>34 RCT randomized double blind of Wyeth studies through 2007 Venlafaxine vs SSRI</td>
<td>Hamilton Scale, ITT remission rates 5.9% difference favoring venlafaxine (95% CI .038--.81, p&lt;.001). NNT 17.</td>
<td>Short term trials limited to Wyeth sponsored studies all SSRI were lumped into one group</td>
<td>1-1</td>
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<tr>
<td>4</td>
<td>Watanabe</td>
<td>2011</td>
<td>SR</td>
<td>29 RCT mirtazapine vs other anti-depressant agents (n=4974)</td>
<td>Response to treatment Compared to TCA no SD (OR 0.85, 95%CI 0.64 to 1.13), to SSRI , mirtazapine Sig effective at 2 weeks (OR 1.57, 95% CI 1.45-1.59)</td>
<td>No long term comparisons</td>
<td>1-1</td>
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<tr>
<td>5</td>
<td>Ciprani</td>
<td>2009</td>
<td>SR</td>
<td>59 studies lower quality RCT comparing sertraline to other antidepressant</td>
<td>Depression response No clear difference between these agents- diarrhea more often with sertraline</td>
<td>Short term poorly controlled efficacy studies</td>
<td>1-2</td>
<td></td>
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<tr>
<td>7</td>
<td>Knorr</td>
<td>2010</td>
<td>SR</td>
<td>SR of RCT’s in healthy subjects</td>
<td>33 trials, 6 SSRI and 163 outcome tests No insight into the effect of SSRI in healthy people- due to divergence of methodology</td>
<td>Studied designed to explore mechanisms of action of SSRI and inconclusive</td>
<td>1-2</td>
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<tr>
<td>8</td>
<td>Weinmann</td>
<td>2008</td>
<td>SR</td>
<td>Venlafaxine vs. SSRI – 17 RCT double blind</td>
<td>28 studies no SD in remission (RR 1.07, 95% CI 0.99-1.15, NNT 34) and small SD in response rates (RR 1.06, CI 1.01-1.12, NNT 27),</td>
<td>SSRI treated as drug class,</td>
<td>1-2</td>
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<tr>
<td>9</td>
<td>Thase</td>
<td>2010</td>
<td>MA</td>
<td>mirtazapine vs. SSRI for 6 weeks double blind</td>
<td>15 RCT Remission week- 2 Mirtazapine (13% vs. 7.8% with SSRI</td>
<td>Mirtazapine compared to all SSRIs as a class and not to individual agents. Individual agents may</td>
<td>1-1</td>
<td></td>
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<tr>
<td>Treatment</td>
<td>Study</td>
<td>Year</td>
<td>Design</td>
<td>Treatment Details</td>
<td>(p&lt;.0001)</td>
<td>differ.</td>
<td>Notes</td>
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<td>Duloxetine vs. venlafaxine for depression RCT of 54 studies (n=12,816)</td>
<td>Schuler</td>
<td>2011</td>
<td>RCT</td>
<td>Odds ratio for depression improvement response</td>
<td>Venlafaxine superior to SSRI (OR 1.20, 95% CI 1.02-1.35) duloxetine did not show advantages over other antidepressants and was less tolerated (OR 1.53, CI 1.10 – 2.13)</td>
<td>Variance in measures of treatment response</td>
<td>1-2</td>
<td></td>
</tr>
<tr>
<td>SSRI vs. SNRI 33 studies, 18 rejected, 15 were in MA, average age 42, 3094 pts.</td>
<td>Machado</td>
<td>2010</td>
<td>MA</td>
<td>Outcomes - remission rates, withdrawal due to lack of efficacy or ADR. Random effects ITT OR</td>
<td>SNRI’s were favored over SSRI (difference in remission) 5.7% (p.007)</td>
<td>General population variance in outcome measures</td>
<td>1-2</td>
<td></td>
</tr>
<tr>
<td>Psychotherapy added to pharmacotherapy 25 RCT</td>
<td>Cupers</td>
<td>2009</td>
<td>MA</td>
<td>Treatment outcome remission</td>
<td>Mean effect size d=.31, (95% CI .2-.43).</td>
<td>SMALL STUDIES NO BLINDING LIMITED ITT ANALYSIS</td>
<td>1-2</td>
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<tr>
<td>Number</td>
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<td>Date</td>
<td>Evidence Type</td>
<td>Sample/Setting</td>
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<td>1</td>
<td>Harris</td>
<td>2011</td>
<td>Random assignment tx vs. waitlist</td>
<td>48 men 6 women 80% white 20% black 66% OIF/OEF</td>
<td>Trauma life events questionnaire PCL Assess religious strain and enhance religious meaning making</td>
<td>Average traumatic events 13 per person combat and sudden death of loved one rated highest Making religious meaning made no difference to outcomes</td>
<td>Small study with poorly described intervention difficult to attribute anything to nonsignificance</td>
<td>1-2 6</td>
</tr>
<tr>
<td>2</td>
<td>Williams</td>
<td>2011</td>
<td>Synthesis of evidence</td>
<td>5 SR of CAM therapies all small trials</td>
<td>Limited evidence for mediation (N=2), relaxation, breath training, Acupuncture for depression with mixed results, better for post stroke depression than short term antidepressants</td>
<td>No SR were large enough, had adequate description of CAM therapy to replicate study None measured QOL</td>
<td>II-7 6</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Bensimon</td>
<td>2008</td>
<td>Qualitative pilot study</td>
<td>9 men 20-23 years, chronic PTSD</td>
<td>Digital camera, interview drumming through trauma intervention</td>
<td>Drumming group improved cohesion and allowed expression of rage and relief</td>
<td>Triangulation content analysis, rhythm categorization and statistical measures. Peer debrief for external validity multiple observations</td>
<td>III-8 6</td>
</tr>
<tr>
<td>4</td>
<td>Abramowitz</td>
<td>2012</td>
<td>Within group pre-post design</td>
<td>37 male Israeli soldiers with chronic PTSD age 41 mean Psychotherapy with hypnosis 6 1.5 hour sessions with olfactory stimulus</td>
<td>Impact of events scale, BDI, dissociative experiences scale</td>
<td>Sig improvement by 6 weeks in IES-R (F=7.14, p.01) BDI (F=10.06, p.003) DES (F=3.74, p.06) Reduced use of medication</td>
<td>Uncontrolled open trial small sample size.</td>
<td>1-3 4</td>
</tr>
<tr>
<td>5</td>
<td>Lande</td>
<td>2010</td>
<td>Pilot study TAU vs. TAU plus biofeedback</td>
<td>8 Active duty military members from OIF/OEF</td>
<td>PCL Biofeedback with Heart rate variability</td>
<td>Biofeedback effect not significant. Significant effect for time in both groups (F=11.98, p&lt;.01) non-significant effect for group (F=1.79, p NS)</td>
<td>Small sample size. Variance in TAU</td>
<td>III-8 6</td>
</tr>
<tr>
<td>6</td>
<td>Hourani</td>
<td>2012</td>
<td>Cluster randomization self-administered questionnaire</td>
<td>28,546 active duty DOD</td>
<td>32 page questionnaire demographics, spirituality, combat exposure, coping, depression, PTSD, suicidal ideation</td>
<td>Moderate spirituality had a protective effect for depression but not PTSD at low to moderate levels of combat exposure. Rates of depression were higher in the high spirituality group. Spirituality interacted with PTSD in high rates of combat exposure but at all rates of exposure interacted with depression to greater degree 70.6% response rate 30% depression positive 10.7% PTSD screen positive 30% met screening for PTSD on ces-d, 10.7% on PCL</td>
<td>Self-report cross sectional</td>
<td>II-6 6</td>
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<tr>
<td>#</td>
<td>Author</td>
<td>Year</td>
<td>Design</td>
<td>Sample</td>
<td>Characteristics</td>
<td>Outcome Measures</td>
<td>Intervention</td>
<td>Research Findings</td>
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<tr>
<td>7</td>
<td>Feinstein</td>
<td>2010</td>
<td>SR</td>
<td>2 RCT, 6 outcome studies military Veterans, disaster survivors</td>
<td>Outcome measures were standardized PCL and CAPS scores</td>
<td>Acupoint stimulation (through activation of the amygdala) along with exposure resulted in shorter treatment times for benefit in PTSD</td>
<td>Research findings are based on small sample sizes and few acupoints</td>
<td></td>
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<tr>
<td>8</td>
<td>Bensimon</td>
<td>2012</td>
<td>Qualitative pilot study</td>
<td>9 men 20-23 years, chronic PTSD</td>
<td>Digital camera, interview drumming through trauma intervention</td>
<td>Music therapy</td>
<td>Triangulation content analysis, rhythm categorization and statistical measures. Peer debrief for external validity multiple observations</td>
<td></td>
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<tr>
<td>9</td>
<td>Jain</td>
<td>2012</td>
<td>RCT</td>
<td>123 active duty, mean age 27 yrs., two deployments, 90% male, 68% white, 62% married, 50% meds for ptsd and 70% alcohol use disorder</td>
<td>PTSD symptoms; secondary outcomes depression, QOL, hostility Healing touch with guided imagery vs. TAU</td>
<td>Repeated measures ANCOVA (p&lt;.005, Cohen’s d= 0.85) for reduction in PTSD symptoms</td>
<td>Lack of standardized assessment, lack of follow up, lack of fidelity and adherence monitoring</td>
<td></td>
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<tr>
<td>10</td>
<td>Williams</td>
<td>2010</td>
<td>Within group repeated measures design</td>
<td>142 active duty, 24% officers, 76% enlisted, mean age 34.1 officers and 29.5 enlisted, 62.3% white, 20.5% black, 2.5% American Indian, average length of service in Navy 16 yrs (O) 9.24 (E) 50% had never deployed to war zone</td>
<td>Open ended questionnaire Internet-based self-help stress management intervention CBT</td>
<td>Perception of stress decreased as measured by open ended questionnaire</td>
<td>No standardized measures. No randomization or control group.</td>
<td></td>
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<tr>
<td>11</td>
<td>Leardman</td>
<td>2011</td>
<td>Within group pre-post questionnaire</td>
<td>38,883 military members</td>
<td>Self-report PTSD symptoms Association of levels of physical activity with PTSD symptoms</td>
<td>20 min or vigorous exercise twice weekly reduced odds ratio for ptst symptoms (OR .38, 95% CI .49-.70),</td>
<td>No longitudinal assessment, no randomization</td>
<td></td>
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<tr>
<td>12</td>
<td>Owens</td>
<td>2012</td>
<td>Within group pre-post design</td>
<td>149 Vets PTSD residential rehab consecutive admissions 75% male 58% Vietnam 62% white 36% black PTSD positive per CAPS</td>
<td>CAPS SCID-1 PCL. BDI-II Kentucky inventory of mindfulness skills (KIMS) 7 weeks of CPT input. Group and individual plus 7 sessions of mindfulness training</td>
<td>MANCOVA repeated measures to determine change in mindfulness over treatment period main effects for gender (F=5.77, p&lt;.001) and time (F=2.30, p=.06) overall model predicted CAPS score after treatment such that higher levels of mindfulness were associated with lower CAPS scores (F=5.59, p=.001). Scores on self-awareness predicted CAPS scores better than other subscales</td>
<td>Input patients seeking treatment for PTSD, non randomized, lack of validity measures on instruments measuring mindfulness over time, pts. also undergoing CPT at same time- difficult to state what the effect of mindfulness training was as it was not isolated as a treatment and there was no comparison group</td>
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<tr>
<td></td>
<td>Author</td>
<td>Year</td>
<td>Design</td>
<td>Sample</td>
<td>Intervention</td>
<td>Outcome Measures</td>
<td>Effect size</td>
<td>Notes</td>
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<td>13</td>
<td>Bormann</td>
<td>2012</td>
<td>2 group by 2 time design intervention</td>
<td>29 male Vets, mean age 56, 66% white, 14% black Vietnam</td>
<td>PTSD symptoms, QOL, pt. satisfaction</td>
<td>Mantram repetition throughout the day</td>
<td>ES (d=-.72) for reducing PTSD symptoms and ES (d=-.70) for increasing quality of life</td>
<td>Small sample size not generalizable chronic population</td>
</tr>
<tr>
<td>14</td>
<td>Stoller</td>
<td>2012</td>
<td>RCT</td>
<td>70 AD deployed to Kirkuk Iraq provided sensory enhanced yoga vs. WL</td>
<td>Sensory processing state and trait anxiety</td>
<td>Sensory enhanced hatha yoga with deep touch pressure 7 times week for 3 weeks</td>
<td>No increase in normalization of sensory processing with treatment group. Significant reduction in state/trait anxiety - difference between tx and WL (t=4.67, p &lt;.001) improved QOL</td>
<td>Small group study done during combat deployment – needs replication</td>
</tr>
<tr>
<td>15</td>
<td>Tan</td>
<td>2011</td>
<td>Pilot study PTSD vs. controls</td>
<td>20 PTSD and 10 controls without PTSD DeBakey VA mean age 36, (24-62) 100% male, 40% white, 35% black, 65% OIF/OEF, 35% Vietnam</td>
<td>Heart rate variability, CAPS, PCL</td>
<td>8 weekly sessions of 30 minutes HRV biofeedback treatment</td>
<td>CAPS improved (d=.80) in tx group. PCL improved (d= 1.0) in tx group. Difference scores (CAPS t=1.17, p .26, d .52) and (PCL t=1.57, p .135, d=.7)</td>
<td>Pilot study with non-significant difference between treatment and WL both improved</td>
</tr>
<tr>
<td>16</td>
<td>Rosenthal</td>
<td>2011</td>
<td>Pilot study</td>
<td>5 Veterans aged 25-40 who had served in OIF/OEF and seen heavy combat high CES scores</td>
<td>CAPS, PCL, QOL, BDI</td>
<td>TM instruction and follow-up over 12 weeks with TM done 2 x daily at home</td>
<td>CAPS mean change score (31.4, 95% CI 7.75-55.05, p .02). PCL mean change scores (24, 95% CI 6.35-41.65, p &lt;.02) improved QOL and BDI</td>
<td>Small pilot study needs replication and measurement of sustainability over time as well as comparison group</td>
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<tr>
<td>1</td>
<td>Williams</td>
<td>2011</td>
<td>Synthesis of evidence SR</td>
<td>5 SR of CAM therapies all small trials</td>
<td>Varying methods</td>
<td>Limited evidence for mediation (N=2), relaxation, breath training. Acupuncture for depression with mixed results, better for post stroke depression than short term antidepressants</td>
<td>No SR were large enough, had adequate description of CAM therapy to replicate study None measured QOL. Depression secondary outcome</td>
<td>II-7</td>
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<tr>
<td>2</td>
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<td>2012</td>
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<td>Uncontrolled open trial small sample size Depression secondary outcome</td>
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<td>Self-report cross sectional depression secondary outcome</td>
<td>II-6</td>
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<td>Lack of standardized assessment, lack of follow up, lack of fidelity and adherence monitoring depression secondary outcome</td>
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<td>Inpatient patients seeking treatment for PTSD, non randomized, lack of validity measures on instruments measuring mindfulness over time, pts. also undergoing CPT at same time difficult to state what the effect of</td>
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</tr>
</tbody>
</table>
black PTSD positive per CAPS

7 weeks of CPT input. Group and individual plus 7 sessions of mindfulness training

such that higher levels of mindfulness were associated with lower CAPS scores (F=6.59, p<.001). Scores on self-awareness predicted CAPS scores better than other subscales

mindfulness training was as it was not isolated as a treatment and there Depression was secondary outcome

| 6 | Rosenthal | 2011 Pilot study | 5 Veterans aged 25-40 who had served in OIF/OEF and seen heavy combat high CES scores | CAPS, PCL, QOL, BDI TM instruction and follow-up over 12 weeks with TM done 2 x daily at home | CAPS mean change score (31.4, 95% CI 7.75-55.05, p .02). PCL mean change scores (24, 95% CI 6.35-41.65, p <.02) improved QOL and BDI | Small pilot study needs replication and measurement of sustainability over time as well as comparison group Depression secondary outcome | III-8 6 |
APPENDIX D: PROGRAMS AND MODELS
<table>
<thead>
<tr>
<th>Number</th>
<th>Author</th>
<th>Date</th>
<th>Evidence Type</th>
<th>Sample/Setting</th>
<th>Measures/Methods</th>
<th>Results/Recommendations</th>
<th>Challenges to Scientific Rigor</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Forbes</td>
<td>2008</td>
<td>Effectiveness study</td>
<td>4339 male Vets admitted to PTSD program between 1995-2008. Mean baseline CAPS</td>
<td>PCL, AUDIT and HADS (hospital anxiety and depression scale) Comparison of programs of care High intense-in/out pt. High intense-residential Moderate intense day program Moderate intense regional day Low intense</td>
<td>Participation in high intensity programs had significant improvement over all other program types. NO difference in moderate types from metropolitan vs. regional programs.</td>
<td>Population studied had selected for stable use of alcohol and depression, population was chronic PTSD of 25 years.</td>
<td>I-3</td>
</tr>
<tr>
<td>2</td>
<td>Shiner</td>
<td>2009</td>
<td>Program eval</td>
<td>CBOC modified access clinic with BH in PC</td>
<td>Measures: optimal BH care percentage, adequate Antidepressant or 10 sessions psychotherapy in 90 days</td>
<td>Improved access (seen within 4 days) improved from 4 to 27%, p &lt; .05 telehealth psych improved access to BH from 6.7 to 36.8%, p &lt; .05 optimal care increased from 0 to 15.8%. p &lt; .05. principal components analysis indicated that 3 factors were most important- pt. spend 20 minutes with NP or psychiatrist, BH present when PC open, and BH and PC in same hallway</td>
<td>Fidelity measurements not present. Number of patients affected not described</td>
<td>III-8</td>
</tr>
<tr>
<td>3</td>
<td>Lester</td>
<td>2011</td>
<td>Quasi-exp. Trial</td>
<td>Comprehensive soldier fitness program (CSF) 31000 active duty CSF vs. waitlist</td>
<td>Global assessment scale psychological and physical variable</td>
<td>Proposed study</td>
<td>Not completed</td>
<td></td>
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<tr>
<td>4</td>
<td>Wells</td>
<td>2011</td>
<td>Review- program of Battlemand to comprehensive soldier fitness program</td>
<td>340000 AD - 5-10% report MH visit within 6 months – after 1 year incidence increased to 16%.</td>
<td>OIF/OEF new onset resiliency programs evolving over time Battlemand- comprehensive soldier fitness research findings supporting new elements are lacking-combination treatments</td>
<td>Substantial literature to support relationship between combat and MH outcomes, esp. PTSD and TBI</td>
<td></td>
<td>III-8</td>
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<tr>
<td>5</td>
<td>Clark-Hitt</td>
<td>2012</td>
<td>Qualitative Program Help a Buddy take a knee</td>
<td>29 Army majors, 1 marine. Deployed mean 2.6 times, 100% male, 26 married. Focus interviews, coded by 2 independent researchers</td>
<td>Sources of messages must be credible and understand military culture, combat experienced, gain respect and trust. Message need to come from senior leadership. Include content about those who received help, benefits, signs of PTSD, positive. Focus on success stories</td>
<td>Study limited to one rank- limits generalizability</td>
<td></td>
<td>III-8</td>
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<tr>
<td></td>
<td>Author</td>
<td>Year</td>
<td>Intervention</td>
<td>Methodology</td>
<td>Outcomes</td>
<td>Notes</td>
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<td>6</td>
<td>Engel</td>
<td>2008</td>
<td>3CM Program military troop</td>
<td>Screen all troops with PCL and PHQ</td>
<td>Phone calls made to all positives</td>
<td>81% had drop of 5 points or more in PHQ by week 12</td>
<td>Pilot study small sample size not randomized.</td>
<td></td>
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<tr>
<td>7</td>
<td>Adler</td>
<td>2009</td>
<td>2297 US Soldiers random to Battlemind debrief 8 hour group sessions in platoons, 26 sessions 30 min duration — included a trauma exposure component imaginal, BM train- PPT and discussion (23 small group and 6 large group) and stress education using PPT 5 sessions</td>
<td>Fidelity 67% audiotaped, - 1060 soldiers provided data pre and post. Ss 95% male, 55-72% combat, 60% low ranks- all AD US soldiers returning from IRAQ</td>
<td>Measures: SUDS subjective units of distress; survey of acceptability of MH services, PCL-17, PHQ9, sleep assessment and stigma assessment</td>
<td>Immediate outcomes revealed no change in SUDS, 4 month follow-up (1060) – effectiveness of BM training, BT debriefing were similar. Stress education separated out as less effective at 18-20 episodes of combat trauma, ES 0.16-0.30.</td>
<td>53% attrition rate Self-report measures of combat exposure- lack of standardized tests of stigma- no control condition high loss to follow up Battlemind debrief and training had small effect sizes</td>
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<tr>
<td>8</td>
<td>Brancu</td>
<td>2011</td>
<td>Citizen soldier support program “Painting a Moving Target”</td>
<td>Training in military cultural competence for health care providers</td>
<td>Collaboration between VA, community and families</td>
<td>Families access care through community but want providers to recognize military related BH problems in their redeployed military members</td>
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<td>9</td>
<td>Morgan</td>
<td>2011</td>
<td>Population based needs assessment of military resilience programs</td>
<td>Integrative review including theoretical and empirical literature- PubMed, CINAHL some terms described</td>
<td>Formulate question, review literature, review resources, reframe question, synthesize data proposal</td>
<td>Navy combat and operational stress continuum; effect of stress on resilience, broaden and build theory of positive emotion, existing resources focus on deploying members, lack consistency across services and lack effectiveness outcome data</td>
<td>Much of needs assessment currently based on self-report data from pdha, pdhra. Need interdisciplinary, cross-sectional data</td>
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<tr>
<td>10</td>
<td>Oxman</td>
<td>2006</td>
<td>Sub study from VA RCT to determine relationship of fidelity to outcomes 224 PC randomized to 3CM for depression treatment 83.5% female, 16% minority, 41.8 yrs.</td>
<td>3CM collaborative care model uses prepared practice, care manager, and psychiatrist supervising the care manager</td>
<td>Care manager logs assessed 10 elements for fidelity that were weighted for importance by independent stakeholders</td>
<td>Fidelity scores were 74 at 3 months and 76 at 6 months. Patients provided high fidelity were significantly more likely to achieve response and remission at 3 and trended toward the same at 6 months on a continuum</td>
<td>Used median fidelity to split the group for interpretation. Lack of primary care in determining weight of items fidelity score</td>
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<td>1</td>
<td>Cigrang</td>
<td>2011</td>
<td>Outcome study</td>
<td>Integrated BH care in Primary care</td>
<td>15 AD with PTSD OIF/OEF Mean age 39, 68% married, 53% white, 20% black, 20% Hispanic, 27% officer, 33% NCO, 40% enlisted, mean months between last deployment and enrollment was 22 months.</td>
<td>PCL-M, PTSD symptom scale (PSS-I) Manualized protocol using emotional processing and PE, CPT primary care treatment context-integrated behavior health providers embedded in primary care</td>
<td>50% of treatment completers no longer met criteria for PTSD PSS-I (t=3.8, p .002) PCL-M (t=2.6, p .02) Amount of reduction of PTSD symptoms by independent evaluation (-34%) or by self-report (-19%)</td>
<td>High drop-out rate (33%)</td>
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<td>2</td>
<td>Schnurr</td>
<td>2012</td>
<td>RCT parallel trial</td>
<td>195 Veteran mean age 45, 91% male, 58% white, 40% OIF/OEF, 42% Vietnam</td>
<td>CICI composite international diagnostic interview, PHQ9, PCL and posttraumatic diagnostic scale collaborative care model</td>
<td>Collaborative care participants filled more medications, had shorter times to mental health visits and more visits than TAU. No difference between TAU and CC on PTSD diagnostic scale, Hopkins depression scale, or SF-36</td>
<td>Primary care provider’s confidence in treating PTSD may have influenced number of referrals to specialty care. Fidelity was measured (79%). Population was not Active duty, lack of female subjects.</td>
<td>I-2 2</td>
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<tr>
<td>3</td>
<td>Fickel</td>
<td>2007</td>
<td>Qualitative</td>
<td>PCMH model in 10 outpatient primary care VA clinics in 5 small states</td>
<td>60 minutes semi-structured interviews on 5 topics: depression detection, current depression practices, current PCM-BH consultation, referral and collaboration, barriers to depression management and barriers to collaboration between BH and PCM</td>
<td>There was a positive relationship between MH and PC, and PC would refer complex cases to MH. There was little evidence of collaboration, care coordination or case mgmt. Barriers were workload, physical distance and number of patients with mild depression referred to mental health care.</td>
<td>Subjects were leaders and practicing clinicians which may have a different perspective that the practicing clinician. Number of sites involved were small (n=10). Subjects were selected due to their willingness to improve depression care and may not be representative of PC-MH collaboration at other areas. The primary criteria of credibility, authenticity and criticality were met. The criterion of integrity with multiple ongoing checks into understanding themes was not met</td>
<td>III-8 4</td>
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<tr>
<td>No.</td>
<td>Author(s)</td>
<td>Year</td>
<td>Project/Model</td>
<td>Setting</td>
<td>Methodology</td>
<td>Findings</td>
<td>Limitations</td>
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<td>4</td>
<td>Engle</td>
<td>2008</td>
<td>QI project Collaborative care Ft. Bragg troop clinic AD and PC patients collaborative care model</td>
<td>Screening of all primary care patients for depression and PTSD using PHQ9 and PCL. Active duty soldiers only: 4159 screened, 404 positive PHQ9, 69 completed collaborative care for 6 weeks.</td>
<td>Clinic screening conducted on all primary care patients and phone calls made to positives at least once during an 8 week interval to assess, promote compliance and answer concerns. 81% had a drop in PHQ by 5 points or more by 8 weeks.</td>
<td>Pilot study small sample size Not randomized Variance in initial PHQ9 scores</td>
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<td>Brawer</td>
<td>2010</td>
<td>Integrated Care Model St Louis VA</td>
<td>Older &gt;80% over 50, 93% Vets, 42% black, 56% white. Number of Vets under 50 and number of women increased in 2nd year of program.</td>
<td>12 months pre compared to 12 months post initiation- access increased 391%; 50% reduction in referrals to specialty MH, increased specialty referral completion by soldiers referred (60%), decreased variation in prescribing patterns of psychotropics among primary care providers.</td>
<td>Older population- variation in population mix over duration of study</td>
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<tr>
<td>6</td>
<td>Bryan</td>
<td>2012</td>
<td>Integrated Care Vets and PC patients, SW and SE US. 75% married, 61% female, 37 years</td>
<td>495 patients with at least 2 appmts referred by PCM to BH. Co-located BH in PC.</td>
<td>Measures: Behavioral Health Measure completed at entry, and each apt.</td>
<td>Pts. scores improved in integrated protocol ¼ of improvement due to number of appointments alone-dose effect. Regardless of initial degree of severity.</td>
<td>Limits: occurred in PC so may be healthier population. Absence of psych diagnoses, lack of comparison group- did not track med usage</td>
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<td>7</td>
<td>Chan</td>
<td>2008</td>
<td>Collaborative Care Model Cross sectional</td>
<td>Depressed Veterans in US effect on PTSD and depression outcomes</td>
<td>Cross sectional study found PTSD positive depressed pts. had more frequent MH care visits and more were given antidepressants than PTSD negative scree n patients, the second compared TAU to collaborative care for depression- In PTSD comorbid, collaborative care trended toward better outcomes but did not reach significance.</td>
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<td>8</td>
<td>Hunter</td>
<td>2011</td>
<td>PCMH BH in VA integrated in PC practice</td>
<td>Goal to transfer BH skills to PCM through repeated consultations and interactions- needs stakeholders to decide what model they desire, professional training of providers, number of staff, facilities.</td>
<td>Blended model of care is recommended for practices with more than 7500 – one FT BHP using PCMH would deliver services and one FT care manager-nurse- for depression care mgt pathways- 1500-</td>
<td>What skills are needed to operate effectively and efficiently given the model- Clinical problem knowledge breadth, ability to adapt assessments and treatments, BHP heuristic to include active role of pts. in their care, pat education, organized treatment protocols, monitoring, follow-up and coordination with other PCMH members. Assess. Advise, Agree Assist Arrange</td>
<td>Population based care. BHP explain role, problem ID rapidly, EBP assessment, self-management skills,</td>
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<td>Last Name</td>
<td>Year</td>
<td>Model Type</td>
<td>Key Components</td>
<td>Approach</td>
<td>Notes</td>
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<td>9</td>
<td>Maguen</td>
<td>2010</td>
<td>Integrated Model</td>
<td>Screens given by nurse one-stop shop PTSD, depression, TBI, AUDIT, then pt. has PCMH OR one FT care manager followed by post deployment specialist BH visit</td>
<td>Close collaboration between all providers of care. Message that MH care is normal check-up - normalize adjustment concerns on redeployment, psycho-education, brief interventions as needed</td>
<td>Short term trial needs longer timeframe to evaluate</td>
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<td>10</td>
<td>Morgan</td>
<td>2011</td>
<td>Integrative Model population based needs assessment military resilience program</td>
<td>Integrative review including theoretical and empirical literature - PubMed, CINAHL, some terms described</td>
<td>Formulate question, review literature, review resources, reframe question, synthesize data proposal</td>
<td>Navy combat and operational stress continuum; effect of stress on resilience, broaden and build theory of positive emotion, existing resources focus on deploying members, lack consistency across services and lack effectiveness outcome data</td>
<td>Much of needs assessment currently based on self-report data from PDHA, PDHRA. Need for interdisciplinary studies and cross sectional</td>
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<td>11</td>
<td>Oxman</td>
<td>2006</td>
<td>Collaborative Care Model with RCT to Model of Care</td>
<td>224 randomized to 3CM for depression treatment, 83.5% female, 16% minority</td>
<td>3CM collaborative care model uses prepared practice, care manager, and psychiatrist supervising the care manager</td>
<td>Fidelity scores were 74 at 3 months and 76 at 6 months. Pts. provided high fidelity were significantly more likely to achieve response and remission at 3 and trended toward the same at 6 months on a continuum</td>
<td>Used median fidelity to split the group for interpretation. Lack of primary care in determining weight of items infidelity score</td>
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APPENDIX E:

COLLEGE OF NURSING DEPARTMENTAL REVIEW COMMITTEE LETTER
October 22, 2012

Heidi McGuigan
1138 Horner Drive
Sierra Vista, AZ 85635

Project Title: Posttraumatic Stress Disorder and Depression in Military Members and Recommendations for Program Evaluation of Evidence-Based Treatment

Dear Heidi

The College of Nursing Departmental Review Committee has decided that the above named Project Inquiry does not qualify as research as defined by CFR 46.102(d). As presented, the activities described do not meet the definition of research as cited in the regulations issued by the U.S. Department of Health and Human Services which state that "research means a systematic investigation, including research development, testing and evaluation, designed to contribute to generalizable knowledge."

No further changes or additions can be made to the protocol without review by the College of Nursing Departmental Review Committee.

Sincerely

Anne Rosenfeld

Anne Rosenfeld, PhD, RN,
FAHA, FAAN Professor and
Associate Dean for Research
REFERENCES


ACS Federal Healthcare, Inc. (2002). Depressive disorder treatment in the military health system (MHS), *ACS Federal Healthcare, Inc.*, NQMP.


