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Treatment of Active-Duty Military With PTSD in Primary Care: Early Findings

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The study presents early findings from an ongoing pilot study of a cognitive–behavioral treatment for assisting active-duty military members with deployment-related posttraumatic stress disorder (PTSD) designed for use by psychologists working in an integrated primary care clinic. Treatment protocol is based primarily on Prolonged Exposure but also includes elements of Cognitive Processing Therapy that were adapted for use in primary care. Individuals were recruited from the population of patients consulted to the psychologist by primary care providers during routine clinical care. The 15 participants include active-duty or activated reserve Operation Iraqi Freedom and Operation Enduring Freedom veterans seeking help for deployment-related PTSD symptoms, with a PTSD Checklist-Military Version score 32, and interest in treatment for PTSD in primary care. Baseline and 1-month posttreatment follow-up evaluations

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were conducted by an independent evaluator. Five participants (33%) dropped out of the intervention after one or two appointments. Using the last observation carried forward for intent-to-treat analyses, the results showed that PTSD severity, depression, and global mental health functioning all significantly improved with the intervention. Fifty percent of treatment completers no longer met criteria for PTSD.

Keywords: primary care, PTSD, treatment, military, veterans

In one of the most comprehensive studies to date of the mental health needs of military members returning from Iraq (Operation Iraqi Freedom [OIF]) and Afghanistan (Operation Enduring Freedom [OEF]), Tanielian et al. (2008) surveyed 1,965 OIF/OEF veterans. They found that many previously deployed military are currently affected by posttraumatic stress disorder (PTSD; probable PTSD 14%) and major depression (14%) or report experiencing a probable traumatic brain injury (TBI; 19%). Only half of those meeting screening criteria for PTSD or major depression reported receiving professional care for these conditions within the past 12 months. Of those who sought help, only half received minimally adequate treatment.

Prolonged Exposure therapy (PE; Foa et al., 1999; Foa et al., 2005; Schnurr et al., 2007) and Cognitive Processing Therapy (CPT; Resick et al., 2008; Resick, Nishith, Weaver, Astin, & Feurer, 2002; Resick & Schnicke, 1992; Monson et al., 2006), emerged from the past decade of clinical research as effective, first-line treatments for PTSD (Bisson, Ehlers, Mathews, Pilling, Richards, & Turner, 2007; Institute of Medicine, 2007; VA/DoD Clinical Practice Guideline for Management of Post-Traumatic Stress, 2003). PE and CPT typically are delivered in weekly 60- to 90-min individual sessions over 10 to 12 weeks in specialty mental health clinics. However, this delivery care model is not always suited for active-duty military members who often work long hours in jobs that provide limited opportunity to commit extended time to medical appointments. Concern that one's military peers and leadership may negatively judge mental health help-seeking can be an additional barrier to accessing specialty care. Hoge and colleagues' (Hoge at al., 2004) survey of Soldiers and Marines after their return from Iraq and Afghanistan found that concern about the stigma of mental health help-seeking was greatest among those most in need of help. Thus, time-intensive psychotherapy delivered in a mental health clinic is unlikely to reach the majority of active-duty military in need of assistance.

Primary care appears to have many potential advantages for delivery of care to active-duty military members experiencing PTSD. All military members are screened for PTSD in primary care using postdeployment health questionnaires, which increases the likelihood that symptomatic individuals will be identified and assessed (Milliken, Auchterlonie, & Hoge, 2007). Primary care populations demonstrate a higher prevalence of PTSD than the general population due to the association of PTSD with physical health complaints and sick call visits (Hoge, Terhakopian, Castro, Messer, & Engel, 2007). Anecdotal reports suggest that military personnel feel less stigmatized when accessing mental health services in primary care.

Current VA/DoD clinical practice guidelines for the management of PTSD in primary care limit treatment options to antidepressant medications, supportive counseling, and referral to specialty mental health care (VA/DoD Clinical Practice Guideline for Management of Post-Traumatic Stress, 2003). These narrow treatment options may contribute to inadequate treatment of PTSD in primary care clinics. Researchers have found that only half of those veterans who meet criteria for PTSD and are seen in primary care receive a PTSD diagnosis and treatment (Magruder et al., 2005; Rodriguez et al., 2003). Among those who were receiving treatment, only 16% received cognitive–behavioral therapy (Rodriguez et al., 2003).

The potential value of targeting not only PTSD, but also other behavioral health concerns, in primary care has contributed to the military services and the Department of Veterans Affairs implementing collaborative care models in primary care. The Primary Care Behavioral Health model (PCBH; Robinson & Reiter, 2007) is one of the most commonly used

models. In a PCBH model, psychologists are embedded into the primary care setting and serve as behavioral health consultants (BHC) to the medical providers; the BHC provides brief, focused assessments and interventions for patients referred by their primary care provider (Bryan, Morrow, & Appolonio, 2009; Cigrang, Dobmeyer, Becknell, Roa-Navarrete, & Yerian, 2006; Goodie, Isler, Hunter, & Peterson, 2009; Wilson, 2003; Zeiss & Karlin, 2008). The fast paced, time-limited nature of BHC services in primary care adapts to the busy lifestyle of military members.

There are no published data on PTSD treatment practices in military primary care settings, but the modal treatment is likely antidepressant medication. It is noteworthy that Tanielian et al. (2008) found that military members' most commonly reported barrier to seeking care was concerns about medication side effects. Over the last several years, evaluations of brief behavioral treatment protocols for specific conditions including insomnia (Goodie et al., 2009) and panic disorder (Roy-Byrne et al., 2005) have been successful, but there has been very limited attention to PTSD. In the one report published to date, Corso et al. (2009) described the treatment of 19 active-duty military with PTSD in an integrated family medicine clinic within five 30-min appointments. This clinical case series reported on a treatment protocol that evolved over time across patients. Patients receiving either the exposure-based or cognitive protocol demonstrated decreases in PTSD symptoms from pre- to posttreatment. The Corso et al. (2009) pilot study provides a valuable window into the efforts to adapt evidence-based treatments for PTSD for use in primary care clinics. However, the study is limited by changes to the treatment protocol over the study, the absence of follow-up data beyond immediate posttreatment, and the lack of independent, interview-based assessment of treatment outcome.

We are conducting a nonpharmacological PTSD treatment protocol adapted for treating active-duty military using the PCBH model in primary care clinics. The study is designed with three primary purposes: 1. Evaluate whether the intervention could effectively be delivered in primary care. 2. Evaluate whether the intervention reduced symptoms of PTSD, as well as other behavioral health symptoms. 3. Evaluate whether symptom reductions in PTSD, if they occurred, were maintained over the course of a year. Although the study is ongoing, we are reporting early findings of the study based on available data.

Method

Research approvals were obtained from the Institutional Review Boards at Brooke Army Medical Center and the University of Texas Health Science Center at San Antonio. The study was also reviewed and approved by the U.S. Army Medical Research and Materiel Command Office of Research Protections, Human Research Protection Office. The study was registered in the clinicaltrials.gov registry (NCT00974402) prior to the recruitment of research participants. In addition, a Data Safety and Management Board monitored the clinical trial as an expert committee, independent from the investigators and the sponsor of the trial, to periodically examine the safety data accumulated during progress of the trial and to ensure that the benefit/risk ratio remained acceptable for participating patients. The study was conducted as part of the STRONG STAR Multidisciplinary PTSD Research Consortium (STRONG STAR: South Texas Research Organizational Network Guiding Studies on Trauma And Resilience).

Participants

All research participants completed informed consent and were treated in accordance with national standards for the responsible conduct of research. Participants include 15 active-duty OIF/OEF veterans with PTSD (12 men, 3 women) who agreed to participate in a primary care-based treatment protocol. Average age was 39 (SD = 9; range 21 to 55) and the majority were married (68%). Fifty-three percent were Caucasian, 20% were African American, 20% were Hispanic, and 7% were Asian. Twenty-seven percent were commissioned officers; 33% were noncommissioned officers; and 40% were junior enlisted personnel. Six participants (i.e., 40%) were taking at least one medication (M = 1.3) and included buproprion, citalopram, lorazepam, quetiapine, risperdal, and zolpidem. None of the participants were being considered for medical discharge from the military. The average number of months be-

tween return from last deployment and enrollment in the study was 22 ($SD = 23$; range 3 to 64). The majority of participants (60%) had deployed more than once. As Table 1 shows, most reported exposure to multiple potentially traumatic events during deployment.

Procedure

The study used a quasi-experimental research design in which prepost changes were evaluated within subjects (Yin, 2009). Participants were recruited from the population of patients referred to the BHC during routine clinical care. Patients with PTSD symptoms were identified and referred directly by their primary care manager or based on their responses to a postdeployment health screening. During the initial 30-min appointment, the BHC conducted a focused assessment of PTSD aided by the PTSD Checklist-Military Version (PCL-M; Weathers, Huska, & Keane, 1991). The BHC educated the patient about factors that contribute to the development and maintenance of PTSD symptoms, with an emphasis on the role of avoidance. The appointment concluded with the BHC presenting PTSD treatment options, which included: 1. Meeting with the psychologist in primary care for four to six 30-min appointments. 2. Referral to the specialty mental health clinic for more intensive, traditional cognitive–behavioral therapy for PTSD. 3. Addressing the symptoms using self-help resources only. Active-duty members with a PCL-M score of 32 or higher and who chose the primary care PTSD treatment were offered the opportunity to participate in a research study evaluating the helpfulness of this treatment option. Study exclusion criteria mirrored patient characteristics that were likely to result in a referral to specialty mental health in routine clinical care. These included moderate to severe suicide risk, current alcohol dependence, psychotic disorder, significant dissociative disorder, and severe brain injury. Eligible participants were scheduled for a baseline assessment with an independent evaluator prior to the first treatment appointment.

Treatment

All treatment was conducted by the first and third author using a manualized protocol developed for use in primary care by the research team. Protocol content was consistent with emotional processing theory and drawn primarily from the PE model (Cahill & Foa, 2007; Schnurr et al., 2007), but also included elements from CPT (Resick et al., 2002; Resick & Schnicke, 1992) that would fit within the con-

Table 1
Most Commonly Endorsed Potentially Traumatic Experiences During Deployment

	Percent of sample experiencing
Combat experiences	
I received hostile incoming fire from small arms, artillery, rockets, mortars, or bombs	87%
I went on combat patrols or missions	75%
I was in a vehicle that was under fire	60%
I personally witnessed someone from my unit or an ally unit being seriously wounded or killed	60%
I participated in a support convoy	53%
I was attacked by terrorists or civilians	53%
I personally witnessed soldiers from enemy troops being seriously wounded or killed	53%
My unit engaged in battle in which it suffered casualties	47%
Aftermath of battle experiences	
I saw civilians after they had been severely wounded or disfigured	87%
I saw Americans or allies after they had been severely wounded or disfigured in combat	80%
I saw the bodies of dead civilians	75%
I saw the bodies of dead Americans or allies	75%
I saw enemy soldiers after they had been severely wounded or disfigured in combat	75%

Note. Combat experiences (DRRI-Combat Subscale); Aftermath of battle (DRRI-Aftermath of battle).

text of primary care appointments. The research team, who had expertise treating PTSD and working in primary care settings, used emotional processing theory to guide the inclusion of elements from PE and some optional theme processing elements from CPT. This model was intended to be amenable to use by embedded primary care psychologists trained in one or both of the primary effective psychotherapies for PTSD (PE or CPT).

At the first 30-min appointment the BHC provided the participant a "Confronting Uncomfortable Memories" activity workbook to be completed at home and brought back for use in subsequent appointments. The workbook asked the participant to write a first-person detailed narrative of the deployment event associated with the greatest level of current distress and preoccupation, including recollection of personal thoughts, feelings, and physical reactions. Participants were instructed to write and then read the trauma narrative for at least 30 minutes each day. Workbook materials provided a subjective unit of distress (SUD) rating form for self-monitoring emotional reactivity to the writing and rereading task. As shown in Table 2, the workbook included emotional processing questions for the participant to answer and review daily. The BHC reviewed the workbook with participants and helped plan when and where to complete the homework. Appointments were scheduled at 2-week intervals.

At the second 30-min appointment the BHC reviewed the participant's experience of writing and reading the deployment memory at home and collaborated with the patient to problem-solve any implementation difficulties. Then the BHC reviewed the pattern of SUDs and discussed the concept of habituation and individual variability. Participants were asked to read the narrative and their answers to the emotional processing questions out loud. The remainder of the appointment was devoted to trauma-associated emotional processing using a focused discussion of problematic beliefs and the emotions they evoke that were evident in the narrative and question responses. At the conclusion of the appointment, the BHC asked the participant to continue rewriting and reading the narrative daily at home. The BHC had the option of prescribing the same emotional processing questions or to select others that more closely matched the individual participant's area of concern (i.e., safety, trust, power/control, esteem, intimacy). This appointment format was repeated at the third and fourth appointments. In addition, the BHC looked for opportunities to encourage engagement with in vivo exposure activities between appointments. At the end of the fourth appointment, the BHC and participant reviewed treatment progress assisted by results of the PCL-M. Possible outcomes were to conclude treatment, schedule one or two additional primary care appointments using the same treatment format, or refer the participant to specialty mental health care.

Table 2
Processing Questions Included in the At-Home Practice Assignment

At-home processing questions
Why do you think this event happened to you?
What caused it to happen?
How has this event changed what you think about yourself?
How has this event changed how you think about others?
How has this event changed how you think about the world?
What new, different, or important information did you notice when you wrote and reviewed your memory?

Measures

PTSD Symptom Scale, Interview Version (PSS-I). The PSS-I is a 20-min, 17-item clinical interview that evaluates *DSM–IV* (American Psychiatric Association, 2000) PTSD symptoms on a frequency/severity scale (Foa, Riggs, Dancu, & Rothbaum, 1993). The PSS-I is comparable to the gold standard employed in studies of veterans (the Clinician Administered PTSD Scale; CAPS) yet takes considerably less time to administer (Foa & Tolin, 2000). The scale has excellent internal consistency ($\alpha = .91$), test–retest reliability (.80), and interrater reliability ($\kappa = .91$). In our study the PSS-I was administered by independent evaluators not involved with the patients' treatment. The evaluators received 12 hours of formal training and weekly clinical supervision from a PSS-I expert.

PCL-M. The PCL-M (Weathers et al., 1991) is a 17-item self-report measure of PTSD symptoms experienced by the respondent over the past month. PCL-M cutoff values in the

range of 30 to 34 yielded sensitivity values at or above .70 and specificity values at or above .90 for a PTSD diagnosis made through a structured clinical interview with 352 Soldiers returning from Iraq (Bliese et al., 2008).

Patient Health Questionnaire–9 (PHQ-9). The PHQ-9 consists of nine items that correspond to the *DSM–IV* criteria for major depression. A total score of 10 or above on the PHQ-9 had a sensitivity and specificity of 88% for accurate diagnosis of major depression compared to a structured psychiatric interview (Kroenke, Spitzer, & Williams, 2001). The PHQ-9 is effective for detecting changes in clinical outcomes in treatment of depression in primary care settings (e.g., Lowe, Unutzer, Callahan, Perkins, & Kroenke, 2004; Richards et al., 2007).

Behavioral Health Measure (BHM). The BHM is a 20-item questionnaire assessing mental health. A Global Mental Health scale is derived by summing all 20 items. Scores range from 0–80 with higher scores indicating better mental health functioning. The BHM discriminated between clinic and nonclinic samples and was highly correlated with other well-established mental health questionnaires (Kopta & Lowry, 2002).

Beck Scale for Suicidal Ideation. The self-report version of the Beck Scale for Suicide Ideation (SSI; Beck, Kovacs, & Weissman, 1979) was used to evaluate the current intensity of the participant's specific attitudes, behaviors, and plans to commit suicide. The self-report SSI has high internal consistency, and there is strong concurrent validity between the self-report and clinically rated SSI versions for both inpatients and outpatients (Beck, Brown, & Steer, 1997).

Deployment Risk and Resilience Inventory (DRRI) Combat Experience and Aftermath-of-Battle subscales. The DRRI Combat Experiences and Aftermath-of-Battle subscales were used to assess exposure to potentially traumatic events while deployed. The DRRI was developed and tested with veterans of the first Gulf War (King, King, Vogt, Knight, & Samper, 2006) and revised and tested with OIF/OEF returnees (Vogt, Proctor, King, King, & Vasterling, 2008). It has very good internal consistency (α = .85 to .89) and construct validity.

Demographic and Military Service Characteristics. The Demographics and Military Service Characteristics form assessed standard demographics and military service information.

Results

Given the early stage of the pilot study and the uncertainty about whether the primary care intervention would have an effect on PTSD symptoms, we explored whether participants were demonstrating changes between the initial appointment and one month following the final treatment appointment. This interim analysis was needed to determine if changes in the treatment protocol might be necessary if participants were not improving as expected. Planned paired-sample *t* tests were conducted using the last observation carried forward (LOCF) for intent-to-treat analyses on all primary outcomes (PSSI, PCL, PHQ, and BHM). Between February and August, 2009, 16 service members were referred to the BHC for PTSD symptoms, and only one individual did not meet criteria for study inclusion. The remaining 15 individuals chose the primary care treatment option and agreed to participate in the study. Five of these participants discontinued treatment after the first or second appointment. Of the five, two could not be contacted for an explanation of their discontinuation. The remaining three individuals discontinued participation because they felt the treatment protocol was not helpful. A larger percentage of the participants taking medications dropped out of the study (3/6, 50%) as compared to those not taking medications (2/9, 22%), but this difference was not statistically significant ($\chi^2 = 1.25$, $df = 1$, $p = .26$).

Table 3 presents the means, standard deviations, and *t*-statistics for the outcome measures. The treatment completers ($N = 10$) attended an average of 4.5 ($SD = 0.7$) of the 30-min appointments. PTSD severity (according to self report and interview), depressive symptoms, and BHM global mental health functioning significantly improved with the intervention. Fifty percent of treatment completers (33% of the overall sample) did not meet criteria for PTSD at the 1-month follow-up assessment. There were no reports of suicidal thoughts, behaviors, or plans on the SSI from any of the participants at pretreatment or follow-up.

Table 3
Changes in Primary Symptom Outcome Measures From Baseline to One-Month Post-Treatment Following Intervention (N = 15)

Measure	Baseline *M* (*SD*)	One month FU *M* (*SD*)	*t*	*p*	Pre to post Hedge's *g*
PSS-I	29.1 (7.5)	19.1 (10.9)	3.8	.002	1.1
PCL-M	58.2 (10.5)	47.1 (16.8)	2.6	.02	0.8
PHQ-9	13.9 (4.7)	9.6 (6.0)	2.6	.02	0.8
BHM	2.3 (0.5)	2.8 (0.5)	−3.4	.004	−1.0

Note. PSS-I = PTSD Symptom Scale, Interview Version; PCL-M = PTSD Checklist–Military Version; PHQ-9 = Patient Health Questionnaire–9 (PHQ-9); BHM = Behavioral Health Measure.

Medicated participants had higher scores at the initial baseline assessment on the PSSI, PCL, and PHQ, but only the difference on the PSSI was statistically significant ($t = 3.27$, $df = 13$, $p < .001$). Within-group tests of the significance of the change scores between baseline and follow-up (i.e., difference from zero) indicated significant improvement on all measures among nonmedicated subjects (all p's < 0.05). Medicated participants also improved, but in that group none of the change scores differed significantly from zero. None of the between-groups t tests were close to significance.

Discussion

These early pilot study results suggest that an adapted form of PE for PTSD treatment can be implemented in a primary care environment using an embedded psychologist. In this small sample, the brief primary care treatment reduced symptoms of PTSD to the degree that half of the service members no longer met diagnostic criteria for PTSD one month following treatment. In addition, depressive symptoms and overall mental health functioning improved. The lack of published research data on the treatment of combat-related PTSD in active-duty military personnel highlights the importance of the publication and dissemination of these early research findings. These findings compare favorably with an average of 68% diagnostic change posttreatment in studies of exposure therapy delivered in specialty mental health settings (Bradley, Greene, Russ, Dutra, & Westen, 2005). So far, the treatment appears to be a feasible model for behavioral health providers embedded in a primary care clinic treating active-duty OIF/OEF veterans by.

There are several limitations with the current pilot study. The strength of our early findings is limited by the small sample size and the absence of a comparison condition. The quasi-experimental research design does not allow for control of possible participant improvement due to the passage of time and the influence of medication use. Additionally, the current lack of long-term follow-up does not allow for an evaluation of the durability of the treatment effect. The dropout rate (33%) was higher compared to most other PTSD studies (Foa et al., 1999; Foa et al., 2005; Monson et al., 2006; Resick et al., 2008; Resick et al., 2002), but similar to the rate reported by Schnurr (2007) and other ongoing trials in OEF/OIF (Rauch, personal communication). The amount of reductions in PTSD symptoms measured by the independent evaluator (−34%) and by self-report (−19%) are somewhat less than the average of about 50% reduction often found in more intensive PE and CPT treatments for civilian traumas delivered in specialty clinic settings (Foa et al., 1999; Foa et al., 2005; Resick et al., 2008; Resick et al., 2002). However, these reductions in PTSD symptoms are similar to the findings from two studies of veterans treated in VA clinics (Monson et al., 2006; Schnurr et al., 2007). It is unclear whether these differences are due to the brief treatment protocol or because the participants were military personnel with combat-related PTSD. Ongoing STRONG STAR Consortium (www.strongstar.org) studies may help answer some of these questions.

The cognitive–behavioral treatment of PTSD in primary care has the potential to become an

important component of a comprehensive stepped-care approach to PTSD treatment. Stepped-care is commonly defined as a service delivery model in which patients are first offered the least restrictive treatment that is still likely to provide some benefit and then "stepped up" in treatment intensity if sufficient health gain is not achieved (Bower & Gilbody, 2005; Davison, 2000). Our findings to date suggest that some active-duty patients with PTSD may only need this relatively brief intervention in primary care to achieve remission of symptoms. Two of the five patients who completed treatment but were not in remission at follow-up agreed to a subsequent referral to specialty mental health care. Thus, an additional advantage of treating PTSD in primary care settings may be to facilitate specialty mental health care for those requiring more time-intensive services, but who otherwise might not pursue that treatment.

Our ongoing pilot study is enrolling additional participants and conducting 6-month and 1-year follow-up assessments. We will continue to evaluate whether the promising findings of these 15 participants are sustained. Planned changes in the United States health care system will likely keep primary care settings as the "de facto" mental health care system in the United States (Reiger et al., 1993). The continued development of evidence-based PTSD treatments for primary care will allow many more patients experiencing PTSD to receive state-of-the-art care.

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