Running head: PILOT OF INTENSIVE WEEKEND TREATMENT FOR PANIC

Intensive Weekend Group Treatment for Panic Disorder and its Impact on Co-occurring PTSD:

A Pilot Study

Ellen J. Teng, Ph.D.,¹⁻⁴ Terri L. Barrera, Ph.D.,¹⁻² Emily L. Hiatt, Ph.D.,¹⁻²
Angelica D. Chaison, Ph.D.,¹⁻² Nancy Jo Dunn, Ph.D.,¹⁻²
Nancy J. Petersen, Ph.D.,^{1,3,4} Melinda A. Stanley, Ph.D.¹⁻⁴

¹Michael E. DeBakey Veterans Affairs Medical Center, ²Menninger Department of Psychiatry and Behavioral Sciences, Baylor College of Medicine, ³Center for Innovations in Quality, Effectiveness and Safety, ⁴VA South Central Mental Illness Research, Education, and Clinical Center

Correspondence concerning this article should be addressed to Ellen J. Teng, Michael E. DeBakey Veterans Affairs (VA) Medical Center, 116 MHCL, 2002 Holcombe Boulevard, Houston, Texas 77030. Email: Ellen.Teng@va.gov. Telephone: 713-578-5513. Fax: 713-794-7917.

Abstract

This pilot study examines the feasibility, acceptability, and potential effectiveness of delivering an intensive weekend group treatment for panic disorder (PD) to Veterans returning from deployments to Iraq and Afghanistan with co-occurring posttraumatic stress disorder (PTSD). The treatment program lasted 6 hours each day and was delivered by two experienced therapists. Patients received core components of panic treatment, including psychoeducation, cognitive restructuring, and interoceptive exposure. The interoceptive exposure exercises directly targeted anxiety sensitivity, a psychological construct also implicated in the maintenance of PTSD. Eighty-nine percent of patients who expressed interest in the treatment attended a baseline evaluation, and 63% of those who were study eligible initiated treatment. Treatment retention was high, with all ten patients who initiated treatment completing the program. Veterans reported finding the treatment and delivery format highly acceptable and reported high levels of satisfaction. Panic symptoms improved significantly following the treatment and were maintained at a 7-month follow-up, with 71.4% of the sample reporting being panic free. Co-occurring PTSD symptoms also improved along with symptoms of anxiety and depression. Preliminary findings suggest that brief and intensive group treatments for PD/PTSD are a promising method of delivering cognitive behavioral therapy that may rapidly improve symptoms. This innovative treatment delivery format also may be a cost-effective way of increasing treatment engagement through increased access to quality care.

Key Words:

intensive treatment; panic disorder; stress disorders, posttraumatic; cognitive therapy; Veterans

Intensive Weekend Group Treatment for Panic Disorder and its Impact on Co-occurring PTSD:

A Pilot Study

1. Introduction

Panic disorder is frequently comorbid with PTSD in civilian and Veteran populations (Barrera, Graham, Dunn, & Teng, 2013; Craske et al., 2006), and the two disorders share symptom overlap in domains such as hypervigilance, autonomic arousal, and avoidance (Teng et al., 2013). The high rate of co-occurrence is attributed in part to shared underlying pathology across the two disorders, including constructs such as anxiety sensitivity (Zvielli, Bernstein, & Berenz, 2012). The effectiveness of cognitive behavioral therapy (CBT) for the treatment of panic disorder (PD) and posttraumatic stress disorder (PTSD) is well established (Barlow, 2002; Norton & Price, 2007; Olatunji, Cisler, & Deacon, 2010; Tolin, 2010), but practice guidelines do not specify a recommended course of treatment for individuals with both disorders (American Psychiatric Association, 2009; National Institute for Health and Clinical Excellence, 2011),

In an effort to streamline treatment for individuals with comorbid disorders, recent research efforts have begun to investigate the efficacy of a single course of CBT in reducing both primary and co-occurring disorders (e.g., Norton et al., 2013). Studies of CBT treatments for panic disorder have reported that 21 - 57% of patients with comorbid anxiety and depression diagnoses experience reductions in the severity of these co-occurring disorders to subclinical levels (Tsao, Lewin, & Craske, 1998; Tsao, Mystkowski, Zucker, & Craske, 2002; 2005). Additionally, a study of CBT for panic disorder among Veterans with comorbid PTSD reported significant reductions in anxiety sensitivity at post-treatment (Teng et al., 2008).

Despite the effectiveness of CBT for panic disorder and its potential to reduce symptoms of comorbid PTSD, relatively few individuals receive this evidence-based psychotherapy (Young, Klap, Shuai, & Wells, 2008). Among Veterans seeking care within the Department of Veterans Affairs (VA) healthcare system, for example, only 28% of Veterans diagnosed with panic disorder received psychotherapy in the year following initial diagnosis, and on average they received only two sessions (Barrera, et al., 2014). These data are supported by studies from the broader literature highlighting the frequency of premature treatment withdrawal among individuals who are able to access CBT for anxiety disorders (Arch & Craske, 2009).

The delivery format of CBT may be one factor related to treatment access and attrition, given that a standard course of CBT for anxiety typically requires 12 to 20 weekly sessions each lasting 60-90 minutes. This standard delivery format typically requires missing work or school to attend multiple therapy sessions, and is problematic for individuals who must travel long distances to access treatment services and/or arrange for childcare (Stecker, Fortney, Hamilton, Sherbourne, & Ajzen, 2010). An additional drawback of standard CBT delivery is that, although a small subset of patients may experience rapid treatment gains (Norton, Klenck, & Barrera, 2010), some patients do not experience significant relief from panic symptoms until completing a full course of treatment, which typically lasts between 3 and 5 months (Otto et al., 2012).

To address these concerns, recent efforts focused on improving patient access and treatment retention have examined the adaptation of CBT using novel delivery methods such as brief or intensive individual therapy formats. Brief therapy formats offer a smaller dose of treatment (i.e., fewer intervention hours), whereas intensive formats retain the standard treatment dose (12 to 20 hours) while modifying the delivery into a condensed time frame. Preliminary data for these delivery formats appear promising, with studies of brief cognitive and cognitive

behavioral interventions for panic disorder demonstrating significant decreases in panic symptoms following 4 to 5 sessions of weekly therapy (Clark et al., 1999; Craske, Maidenberg, Bystriksy, 1995). Studies of intensive CBT for panic disorder also show significant improvements in panic symptoms following 20-24 therapy hours delivered over 6 days (Bitran, Morissette, Spiegel, & Barlow, 2008) and 9 therapy hours delivered over 2 days (Deacon & Abramowitz, 2006). The rapid improvement in symptoms and large effect sizes resulting from intensive CBT occurred despite limited opportunities for between-session practice, and were comparable to those reported in trials of standard 12-week CBT for panic disorder (Barlow, Gorman, Shear, & Woods, 2000; Addis et al., 2004). These studies highlight the remarkable effectiveness of brief and intensive CBT formats in reducing panic symptoms in a shortened timeframe; however, the effect of these interventions on comorbid disorders such as PTSD remains unknown.

Although fewer studies have evaluated intensive PTSD treatment delivery formats, similar rates of improvement were reported in a small feasibility study of intensive individual cognitive therapy for PTSD, which included up to 18 hours of therapy delivered over 5-7 working days, showed that the intervention was well tolerated and resulted in an 85.7% remission rate of PTSD at post-treatment (Ehlers et al., 2010). Treatment gains were comparable to those reported in a trial of standard cognitive therapy for PTSD delivered in a weekly session format (Ehlers, Clark, Hackmann, McManus & Fennell, 2005), but occurred in a much shorter time period.

Although these novel individual formats improve accessibility for patients, few practice settings afford the option for therapists to devote 9 to 24 hours a week to a single patient. Thus, the time-intensity and cost of these interventions may pose feasibility and logistic issues for

clinicians who manage full caseloads. Intensive group interventions offer an alternative approach that maximizes resources by providing treatment to multiple individuals simultaneously. In comparison to standard individual CBT, group CBT for panic disorder has been shown to be more cost-effective while resulting in comparable symptom improvement (Roberge, Marchand, Reinharz, & Savard, 2008).

The present pilot study describes a group-based intensive CBT intervention for panic disorder based on the empirically supported Panic Control Treatment protocol (Barlow & Craske, 1994; Craske, Barlow, & Meadows, 2000). The intensive panic control treatment (IPCT) used in this study allows core treatment components (psychoeducation, cognitive restructuring, and interoceptive and in-vivo exposure) to remain intact, while condensing the delivery format to two consecutive days. Though PTSD was not a focus of the IPCT intervention per se, it was expected that the impact of these core treatment components on anxiety sensitivity would generalize to symptoms of PTSD as well. Accessibility difficulties posed by the standard 12-week delivery format were addressed by providing the treatment over one weekend in order to accommodate individuals who were unable to attend weekly therapy due to disruption of regular work hours, travel distance, and schedule conflicts. The weekend IPCT treatment was offered to returning Veterans from the Operation Enduring Freedom and Operation Iraqi Freedom conflicts, a patient population that has proven particularly challenging to engage in mental health treatment (e.g., Zinow, Britt, McFadden, Burnette, & Gillispie, 2012). Similar to the weekend drill experience familiar to Veterans, this format encouraged camaraderie and peer support. The primary goals of this study were to investigate the feasibility of providing the intensive two-day treatment over one weekend and to assess treatment acceptability and satisfaction. A secondary aim was to evaluate degree of symptom improvement. We hypothesized that participants would

find the intensive group treatment delivery format to be a satisfactory and acceptable form of treatment, with preliminary support for improvement in panic and PTSD symptoms, as well symptoms of anxiety and depression.

2. Method

2.1 Participants

Service members recently returning from deployment to Iraq and Afghanistan were recruited from a large Veterans Affairs hospital through a specialty outpatient treatment program for Veterans with PTSD and related anxiety disorders. Inclusion criteria consisted of a current diagnosis of panic disorder and PTSD. Exclusion criteria included current (1) substance dependence, (2) diagnosis of bipolar disorder or psychosis, and (3) severe depression with active suicidal ideation/intent. Patients taking medications for anxiety-related problems were included provided they were on a stable regimen of medications for a minimum of 4 weeks prior to treatment.

Veterans were referred by their mental health providers or by responding to brochures placed in clinic waiting areas. Patients completed a 2-hour screening appointment to be assessed for study eligibility and baseline data collection approximately two weeks before treatment. Participants completed a post-treatment assessment approximately two weeks following treatment, and a follow-up assessment approximately seven months after treatment. This study was approved by the local Institutional Review Board and VA Research and Development Committee.

2.2. Materials

Measures assessed (1) feasibility and acceptability of the intensive two-day treatment and (2) preliminary outcomes. Outcomes were assessed using self-report measures to parallel the

provision of real-world care and to maximize study feasibility. To ensure that patients in the study met criteria for panic disorder and PTSD, a clinician administered interview using the Anxiety Disorder Interview Schedule for DSM-IV (ADIS-IV; American Psychiatric Association, 1994) was conducted during the baseline assessment, approximately two weeks before treatment. The ADIS-IV is widely used in anxiety-related research with both civilian (e.g., Craske, DeCola, Sachs, & Pontillo, 2003) and Veteran samples (e.g., Teng et al., 2008).

2.2.1 Feasibility and Acceptability Measures

2.2.1.1 Feedback Form

A brief questionnaire requesting feedback about the intensive treatment was developed for this study. Patients were asked to rate items related to the feasibility of attending and participating in the weekend treatment, and to rate their confidence in dealing with factors related to panic disorder. Ratings ranged from 1 (not at all; strongly disagree; poor) to 5 (definitely; strongly agree; very good). The form also requested open-ended feedback regarding what patients found to be the most and least helpful about the treatment.

2.2.1.2 Client Satisfaction Questionnaire-8 (CSQ). The CSQ-8 (Larsen, Attkisson, Hargreaves, & Nguyen, 1979). The CSQ-8 is a brief 8-item instrument used to assess patients' overall satisfaction with treatment. Responses are rated on a 4-point scale ranging from 1 (low quality/satisfaction) to 4 (high quality/satisfaction), with higher scores (range of 8 to 32) reflecting greater treatment satisfaction. The CSQ-8 has good internal consistency, with alphas ranging from 0.92 to 0.93 (Attkisson, 1982). For the current sample, internal consistency was 0.94.

2.2.2 Outcome Measures.

2.2.2.1 Panic Attack Records. At the three assessment time points during the study, patients were provided with panic attack records (Craske et al., 2000) to complete during the 7 days following a scheduled evaluation. Panic attack frequency was calculated based on the total number of forms completed for each 7-day monitoring period. Each record form lists the 13 DSM-IV symptoms associated with panic attacks, and participants checked off each symptom experienced during a given panic attack. Overall fear associated with the attack was also recorded on the form using a scale from 0 (none) to 8 (extreme).

2.2.2.2 Anxiety Sensitivity Index (ASI). The ASI (Peterson & Reiss, 1993) is a 16-item self-report measure that assesses an individual's concerns about psychological, physiological, and social symptoms of anxiety. Responses are rated on a 5-point Likert scale ranging from 0 (very little) to 4 (very much). Items are summed to derive a total score ranging from 0 to 64, with higher scores reflecting a greater fear of anxiety-related sensations. Normative data for clinical samples of PD patients revealed a mean ASI score of 35.9, and patients with PTSD had a mean score of 31.6. The ASI has good internal consistency and test-retest reliability (Peterson & Reiss, 1993). Internal consistency for the current sample was 0.85.

2.2.2.3 Posttraumatic Stress Disorder Checklist-Civilian Version (PCL-CV). The PCL-CV (DSM-IV; Weathers, Litz, Herman, Huska, & Keane, 1993) is a 17-item self-report measure that assesses the presence and severity of PTSD-related symptoms. A 5-point scale ranging from 1 (not at all) to 5 (extremely) is used to indicate the degree of distress experienced for each symptom over the past month. Items are summed to derive a total score. Among military samples, scores exceeding a cutoff of 50 suggest significant distress and likelihood of a PTSD diagnosis. The PCL-CV has excellent internal consistency and test-retest reliability in Veterans

(Blanchard, Jones-Alexander, Buckley, & Forneris, 1996; Weathers et al., 1993). Internal consistency for the current sample was 0.91.

2.2.2.4 Depression and Anxiety Stress Scale (DASS). The DASS (Lovibond & Lovibond, 1995) is a 42-item self-report measure that assesses the domains of anxiety, depression, and stress, yielding three subscale scores. A unique feature of the DASS is that items on the anxiety and depression scales do not overlap, providing maximum discrimination between the two scales. Responses are rated on a 4-point scale ranging from 0 to 3, with higher scores indicating greater distress. The measure has good test-retest reliability (Brown, Chorpita, Korotitsch, & Barlow, 1997) and good convergent and discriminant validity. Internal consistency for the Depression ($\alpha = 0.96$), Anxiety ($\alpha = 0.79$), and Stress ($\alpha = 0.89$) subscales in the current sample was good.

2.2.2.5 Outcome Questionnaire-45.2 (OQ-45.2). The OQ-45.2 (Lambert, Hansen, Umpruss, Lunnen, Okiishi, & Burlingame, 1998) is a self-report measure of overall well-being, symptoms and associated distress as assessed by three subscales: (1) Symptom Distress, (2) Social-Role Functioning, and (3) Interpersonal Relationships. This measure has commonly been used to examine psychotherapy effectiveness over time (Kadera, Lambert, & Andrews, 1996). Responses are rated on a 5-point Likert scale ranging from 0 to 4, with higher scores indicating poorer well-being and greater distress. The OQ-45.2 total score ranges from 0 to 180; Symptom Distress subscale ranges 0 to 100; Social-Role Functioning ranges 0 to 36; and Interpersonal Relationships ranges from 0 to 44. The OQ-45.2 has good internal consistency for the overall scale ($\alpha = 0.93$) and the three subscales (alphas ranging from .70 to .92) and stable test-retest reliability. For the current sample, the overall scale demonstrated good internal consistency (0.91), with alphas for the three subscales ranging from .65 - .83.

2.3 Procedure

Veterans completed a baseline assessment including a structured clinical interview and self-report measures approximately two weeks before participating in IPCT. A trained member of the research team with a Master's degree in the social sciences conducted the assessments under the supervision of a licensed psychologist. Eligible participants attended the weekend treatment, which was delivered by two experienced psychologists (EJT, ADC) who have used this protocol with Veterans in the past (Teng et al., 2008). Veterans received up to \$145 in monetary compensation over the course of the study for attending multiple assessment appointments.

IPCT is based on Panic Control Treatment (PCT), an empirically supported cognitive behavioral intervention for panic disorder (Craske et al., 2000). All primary components of the PCT protocol were retained with slight modifications to the amount of time allotted to various treatment components. Treatment was delivered over two consecutive 6-hour days. Roughly one-third of the time was devoted to providing psychoeducation regarding the nature of anxiety and the panic cycle, one-third to cognitive restructuring exercises focused on overestimation and catastrophizing in panic, and one-third to interoceptive exercises and relapse prevention. At the end of the first treatment day, patients were asked to complete thought records for their panic attacks and practice diaphragmatic breathing. The following day began with a review of thought records and degree of success with practicing the breathing exercise, followed by interoceptive exposure. The last hour of the second treatment day was used to discuss agoraphobic avoidance and methods of facing situations, concluding with relapse prevention. Veterans were encouraged to continue practicing the skills they learned, including tracking their anxiety and panic, challenging their thoughts, and facing their fears through interoceptive and real-life exposure

exercises. The only deviation from the original protocol was that there was limited opportunity for between-session practice. Three separate weekend groups with 3-4 Veterans each were conducted.

2.4 Statistical Approach

Descriptive data for participants, treatment retention, acceptability, and satisfaction are presented. Effect size (Cohen's *d*; Cohen, 1988) was calculated for each measure to evaluate the magnitude of change over time. The clinical significance of treatment-related change for primary outcomes was evaluated using two methods as discussed by Jacobson and Truax (1991). First, scores were individually evaluated for statistically reliable change (RC) from pre-treatment to post-treatment and pre-treatment to follow-up using established algorithms (Christensen & Mendoza, 1986; Jacobson & Truax, 1991). Magnitude of improvement was statistically reliable at $RC > 1.96$. The second method determined statistically whether participant scores at post-treatment and follow-up were in closer proximity to the normative range of functioning than dysfunctional range of functioning (see approach "c," Jacobson & Truax, 1991). Cut-offs were calculated for each respective measure using published normative data. Scores that surpassed the cut-off for the normative range were classified as "recovered" (Jacobson & Truax, 1991). Thus, each score was evaluated for clinically reliable change and recovery status at post-treatment and follow-up.

3. Results

3.1 Participants and Treatment Retention

A total of 19 patients who expressed interest in the weekend treatment were invited to attend a pre-treatment assessment approximately two weeks before the weekend intervention to evaluate study eligibility and obtain baseline data. Of the 17 patients who completed the

assessment (2 patients no-showed multiple rescheduled appointments), 16 Veterans met inclusion criteria. Sixty-three percent of Veterans who qualified for the study initiated treatment ($n = 10$) by attending the first day of IPCT. The six individuals who did not initiate treatment cited reasons including illness, being called into work, and transportation difficulties. Independent t-tests showed no significant differences between patients who initiated treatment and those who did not on self-report measures of anxiety sensitivity, PTSD symptoms, depression, and overall functioning ($p > .05$); however, Veterans who did not initiate treatment reported significantly higher levels of stress ($M=37.00$, $SD=4.24$) and anxiety ($M=32.00$, $SD=5.94$) than treatment initiators (stress: $M=29.50$, $SD=6.67$, anxiety: $M=24.10$, $SD=6.77$).

The final sample of Veterans who initiated treatment was comprised of six men and four women, all of whom met DSM-IV criteria for panic disorder (primary diagnosis for 6 patients) and PTSD (primary diagnosis for four patients). The nature of the trauma for all patients was related to military combat. The average age was 28.8 years ($SD = 4.39$), and the majority (80%) of the sample reported attending some college. Seventy percent were married or cohabitating with a significant other. The sample was racially/ethnically diverse, with six individuals identifying as White, three as Latino, and one as African American.

Eight of the 10 patients were on a stable regimen of psychotropic medications at the time of treatment, primarily consisting of SSRIs and hypnotic medications. No patients were prescribed benzodiazepines. All Veterans who initiated treatment ($n = 10$) completed the treatment in its entirety, thus indicating full retention for treatment initiators. Nine participants completed the post-treatment assessment at approximately two weeks (1 moved out of state) and seven participants completed the follow-up assessment at approximately seven months (3 unable to be contacted). Chart review of medication use at the final follow-up indicated that 4 patients

discontinued all medications under the guidance of their psychiatrists, and the remaining 6 participants continued with their regimen of psychotropic medications with no dosage changes since initiating treatment. However, a benzodiazepine was added for one of these patients to be used as needed.

Mental health services received between the post-treatment (2 weeks following IPCT) and follow-up assessments (7 months following IPCT) were determined by chart review. Of the 7 patients assessed at follow-up, 4 had seen their psychiatrists for medication management, averaging 2.8 appointments. There was one crisis clinic/emergency room visit. Additionally, four patients received individual supportive counseling averaging 7.8 sessions.

3.2 Treatment Acceptability and Satisfaction

Veterans reported a high level of overall satisfaction with IPCT (CSQ; $M = 30.90$, $SD = 2.28$). Examination of CSQ-8 items (scaled from 0 to 4, with 4 indicating highest satisfaction) revealed that participants were highly satisfied with IPCT ($M = 3.90$, $SD = .32$); believed IPCT met their needs ($M = 3.60$, $SD = .70$) and helped them manage symptoms more effectively ($M = 3.80$, $SD = .42$). Veterans also were likely to recommend IPCT to friends facing similar problems ($M = 4.0$, $SD = .00$).

3.3 Treatment Outcomes

We found large effect sizes for reductions in panic frequency from pre-treatment to post-treatment and pre-treatment to follow-up (see Table 1). Reduction in panic fear evidenced a medium-to-large effect size from pre-to-post-treatment. Large effect sizes ($d > .80$) were observed on all other study measures from pre-treatment to post-treatment (see Table 1). These included improvements in anxiety sensitivity (ASI), PTSD symptoms (PCL-CV), general levels of anxiety, depression and stress (DASS), and overall well-being (OQ-45.2).

3.4 Analyses of Clinical Significance

Table 2 presents the proportions of Veterans who evidenced reliable change in symptom improvement and fell within a normative range of functioning (i.e., “recovered” status) on measures of anxiety sensitivity and PTSD. At both post-treatment and follow-up, the majority of participants achieved reliable change or a normative level of functioning.

4. Discussion

This pilot study was conducted to evaluate the feasibility, acceptability, and potential effectiveness of an intensive weekend intervention for panic disorder in Veterans with comorbid PTSD symptoms. Results indicated that IPCT can be safely and efficiently delivered to a small group of patients over one weekend. Over half of the Veterans who expressed interest initiated therapy. Treatment retention was high; all ten patients who initiated treatment completed the entire program. Participants also reported high rates of treatment acceptability and satisfaction with IPCT. Although Veterans who did not initiate treatment reported higher levels of general stress and anxiety, they were otherwise similar to treatment initiators on other measures of distress.

Preliminary outcomes in this study suggest IPCT is comparable to standard treatment formats but may increase treatment accessibility while potentially reducing healthcare costs. Clinically significant reductions in panic symptoms were found immediately following treatment with sustained effects at a 7-month follow-up, in which 71.4% of the sample reported being panic free. These outcomes are consistent with findings reported from a two-day intervention with a civilian sample, in which 60% were panic free (Deacon & Abramowitz, 2006) and a standard delivery intervention with a Veteran sample, in which 63% were panic free (Teng et al., 2008). More importantly, these findings suggest that intensive treatment formats hold promise in

producing equivalent rates of improvement as compared with standard treatment formats--but over a much shorter period of time.

A finding of particular interest was the improvement in PTSD symptoms, which may be explained by recent research highlighting the role of anxiety sensitivity in the broader spectrum of emotional disorders (Boswell et al., 2013) and in PTSD specifically (Wald & Taylor, 2007; Vujanovic, Zvolensky, Bernstein, 2008). In persons with PTSD, anxiety about negative emotions (a form of anxiety sensitivity) is associated with symptoms of re-experiencing and trauma related thoughts (Wald & Taylor, 2007, 2005; Ehlers & Clark, 2000). IPCT directly targets anxiety sensitivity through interoceptive exercises, involving systematic and repeated exposures to feared sensations to dispel beliefs that these sensations will lead to harmful or catastrophic consequences. Thus, reducing anxiety sensitivity through interoceptive exposure may explain concurrent improvement in avoidance of negative emotions and decreases in PTSD-related symptoms. These findings are especially encouraging in light of evidence suggesting greater treatment resistance and smaller effect sizes among Veterans relative to civilians (Barrera, Mott, Hoffstein, & Teng, 2013; Mohr, Carmody, Erickson, Jin, & Leader, 2011; Dunn et al., 2007; Schnurr et al., 2003).

Large treatment effects were found for anxiety related symptoms and functional status in the present study. Following the weekend intervention, Veterans reported rapid symptom improvement in co-occurring symptoms of depression and anxiety and overall well-being. These improvements maintained over a 7-month follow-up. The generalizing effects of CBT to other symptom domains are well documented in the literature (Craske et al., 2007; Tsao et al., 2005), including recent studies which show that brief and intensive treatments for panic disorder can produce similar effects (Gallo, Chan, Buzzella, Whitton, & Pincus, 2012; Austin, Sumbundu,

Lykke, & Oestrich, 2008; Deacon & Abramowitz, 2006). This holds important implications for increasing treatment accessibility and efficiency for populations difficult to reach – especially patient populations who typically exhibit low rates of engagement in mental health treatment, such as returning Veterans (Zinow et al., 2012; Stecker et al., 2010).

Innovative approaches to delivering evidence-based interventions can directly increase access to mental health services and simultaneously address common barriers to treatment, including geographic limitations and time away from work and school (Fortney, Burgess, Bosworth, Booth, & Kaboli, 2011; Stecker et al., 2010; Hoge et al., 2004). Results from the current pilot study suggest that brief intensive interventions can produce rapid symptom improvement and help individuals return to normative levels of functioning. Additional advantages of brief treatment formats are higher retention and completion rates, increased efficiency in use of staff resources (for group formats), and the preservation of therapeutic momentum that is often disrupted when sessions are dispersed over a longer period of time (Ehlers et al., 2010).

Despite the many advantages inherent in treatments such as IPCT, intensive exposure-based treatment may not be appropriate for all persons. Careful assessment and screening of clinical severity (e.g., severe depression or psychotic features) and consideration of treatment interfering behavior resulting from severe Axis II pathology are critical to the success of intensive group treatments (Beason-Smith, Hiatt, Grubbs, & Teng, 2012). The faster pace and volume of information in intensive treatment formats may not be suitable for individuals with cognitive difficulties. Also, obtaining reimbursement for intensive services from insurance companies may be challenging, as most companies impose certain restrictions on frequency and duration of sessions for behavioral healthcare (Deacon & Abramowitz, 2006).

The current study is the first to evaluate an intensive weekend group treatment for panic disorder. Although results are encouraging, findings should be interpreted in the context of limitations commonly associated with pilot trials. The absence of a control group precludes the ability to conclude that outcomes were due exclusively to the treatment itself, and not to other non-specific factors of therapy (e.g., therapist contact, therapeutic alliance) or naturalistic processes (e.g., regression to the mean). The small sample limits generalizability of findings and precluded additional analyses to examine if participants who discontinued medication differed from those who did not. Although the use of only self-report measures at follow-up time periods translates well to real-world practice, the absence of clinician assessment at follow-up is a limitation. Additionally, treatment completion rates may have been influenced by the financial compensation offered in this pilot study.

Apart from these limitations, preliminary outcomes from the current study suggest that IPCT is an innovative and promising treatment for panic disorder. The potential to produce immediate symptom relief with sustained effects that generalize to other comorbid conditions such as PTSD while improving functional outcomes highlights this as an important area of research that warrants further investigation. Larger scale clinical trials are needed to determine the effectiveness of IPCT in comparison to standard treatment delivery methods. If found to be an effective treatment, examining the feasibility of delivering IPCT in different clinical settings and by providers with different training backgrounds will be important in future implementation and dissemination efforts.

Acknowledgements

This work was supported by VA Clinical Sciences Research and Development (CSR&D) Career Development Award (#CADE-MHN/F09) awarded to Ellen J. Teng at the Michael E. DeBakey Veterans Affairs Medical Center. This material is also supported by a Clinical Partnership Grant from the VA South Central Mental Illness, Research, Education, and Clinical Center (SC MIRECC) and the Center for Innovations in Quality, Effectiveness and Safety (#CIN 13-413), Michael E. DeBakey VA Medical Center, Houston, TX. The views expressed reflect those of the authors and not necessarily the Department of Veterans Affairs, the US government or Baylor College of Medicine.

References

- Addis, M. E., Hatgis, C., Krasnow, A. D., Jacob, K., Bourne, L., & Mansfield, A. (2004). Effectiveness of cognitive behavioral treatment for panic disorder versus treatment as usual in a managed care setting. *Journal of Consulting and Clinical Psychology, 72*, 625–635. doi: 10.1037/0022-006X.72.4.625
- American Psychiatric Association (2009). *Practice guideline for the treatment of patients with panic disorder*. Washington, DC: Author.
- American Psychiatric Association (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- Arch, J. J., & Craske, M. G. (2009). First-line treatment: A critical appraisal of cognitive behavioral therapy developments and alternatives. *Psychiatric Clinics of North America, 32*, 525-547. doi:10.1016/j.psc.2009.05.001
- Attkisson, C., & Zwick, R. (1982). The Client Satisfaction Questionnaire: Psychometric properties and correlations with service utilization. *Evaluation and Program Planning, 5*, 233-237. doi: 10.1016/0149-7189(82)90074-X
- Austin, S. F., Sumbundu, A. D., Lykke, J., & Oestrich, I. H. (2008). Treating panic symptoms within everyday clinical settings: The feasibility of a group cognitive behavioural intervention. *Nordic Journal of Psychiatry, 62*, 287-293. doi: 10.1080/08039480801984016
- Barlow, D. (2002). *Anxiety and its disorders: The nature and treatment of anxiety and panic*. New York: Guilford Press.
- Barlow, D. H., & Craske, M. G. (1994). *Mastery of your anxiety and panic II (MAP II)*. Albany, NY: Graywind.

- Barlow, D., Gorman, J., Shear, M., & Woods, S. (2000). Cognitive-behavioral therapy, imipramine, or their combination for panic disorder: A randomized controlled trial. *Journal of the American Medical Association*, 283, 2529–2536. doi: 10.1001/jama.283.19.2529
- Barrera, T. L., Mott, J. M., Hoffstein, R. F., & Teng, E. J. (2013). A meta-analytic review of exposure in group cognitive behavior therapy for posttraumatic stress disorder. *Clinical Psychology Review*, 33, 24-32. doi: 10.1016/j.cpr.2012.009.005
- Barrera, T. L., Mott, J. M., Hundt, N. E., Mignogna, J., Yu, H. J., Stanley, M. A., & Cully, J. A. (2014). Diagnostic specificity and mental health service utilization among veterans with newly diagnosed anxiety disorders. *General Hospital Psychiatry*, 36, 192-198. doi: 10.1016/genhosppsy.2013.10.013
- Barrera, T. L., Graham, D. P., Dunn, N. J., & Teng, E. J. (2013). Influence of trauma history on panic and PTSD in returning veterans. *Psychological Services*, 10, 168-176. doi: 10.1037/a0031178
- Beason-Smith, M., Hiatt, E. L., Grubbs, K. M., & Teng, E. J. (2012). Managing the approach-avoidance dialectic in treating a complex veteran with panic and PTSD. *Clinical Case Studies*, 11, 167-183. doi: 10.1177/1534650112442109
- Blanchard, E. B., Jones-Alexander, J., Buckley, T. C., & Forneris, C. A. (1996). Psychometric properties of the PTSD Checklist (PCL). *Behaviour Research and Therapy*, 34, 669-673. doi: 10.1016/0005-7967(96)00033-2

- Boswell, J. F., Farchione, T. J., Sauer-Zavala, S., Murray, H. W., Fortune, M. R., & Barlow, D. H. (2013). Anxiety sensitivity and interoceptive exposure: A transdiagnostic construct and change strategy. *Behavior Therapy*, 44, 417-431. doi: 10.1016/j.beth.2013.03.006
- Brown, T. A., Chorpita, B. F., Korotitsch, W., & Barlow, D. H. (1997). Psychometric properties of the depression anxiety stress scales (DASS) in clinical samples. *Behaviour Research and Therapy*, 35, 79-89. doi: 10.1016/j.jad.2008.01.023
- Britan, S., Morissette, S. B., Spiegel, D. A., & Barlow, D. H. (2008). A pilot study of sensation-focused intensive treatment for panic disorder with moderate to severe agoraphobia: Preliminary outcome and benchmarking data. *Behavior Modification*, 32, 196-214. doi: 10.177/0145445507309019
- Christensen, L., & Mendoza, J. L. (1986). A method of assessing change in a single subject: An alteration of the RC index. *Behavior Therapy*, 17, 305-308. doi: 10.1016/S0005-7894(86)80060-0
- Clark, D. M., Salkovskis, P. M., Hackmann, A., Wells, A., Ludgate, J., & Gelder, M. (1999). Brief cognitive therapy for panic disorder: a randomized controlled trial. *Journal of Consulting and Clinical Psychology*, 67, 583-589. doi: 10.1037/0022-006X.67.4.583
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.
- Craske, M. G., DeCola, J. P., Sachs, A. D., & Pontillo, D. C. (2003). Panic control treatment for agoraphobia. *Journal of Anxiety Disorders*, 17, 321-333. doi: 10.1016/S0887-6185(02)00203-7
- Craske, M. G., Barlow, D. H., & Meadows, E. A. (2000). *Mastery of your anxiety and panic: Therapist guide for anxiety, panic, and agoraphobia* (3rd ed.): Oxford University Press.

- Craske, M. G., Maidenberg, E., & Bystritsky, A. (1995). Brief cognitive-behavioral versus nondirective therapy for panic disorder. *Journal of Behavior Therapy and Experimental Psychiatry*, 26, 113-120. doi: 10.1016/0005-7916(95)00003-I
- Craske, M. G., Roy-Byrne, P., Stein, M. B., Sullivan, G., Hazlett-Stevens, H., & Bystritsky, A. (2006). CBT intensity and outcome for panic disorder in a primary care setting. *Behavior Therapy*, 37, 112–119. doi: 10.1016/j.beth.2005.05.003
- Deacon, B., & Abramowitz, J. (2006). A pilot study of two-day cognitive-behavioral therapy for panic disorder. *Behaviour Research and Therapy*, 44, 807-817. doi: 10.1016/j.brat.2005.05.008
- Dunn, N.J., Rehm, L.P., Schillaci, J., Soucheck, J., Mehta, P., Ashton, C. M., ... Hamilton, J.D. (2007). A randomized trial of self-management and psychoeducational group therapies for comorbid chronic posttraumatic stress disorder and depressive disorder. *Journal of Traumatic Stress*, 20, 221-237. doi: 10.1002/jts.20214
- Ehlers, A., & Clark, D. M. (2000). A cognitive model of post-traumatic stress disorder. *Behaviour Research and Therapy*, 38, 319-45. doi: 10.1016/S0005-7967(99)00123-0
- Ehlers, A., Clark, D. M., Hackmann, A., Grey, N., Liness, S., Wild, J., ... McManus, F. (2010). Intensive cognitive therapy for PTSD: A feasibility study. *Behavioural and Cognitive Psychotherapy*, 38, 383-398. doi: 10.1017/S1352465810000214
- Ehlers, A., Clark, D. M., Hackmann, A., McManus, F., & Fennell, M. (2005). Cognitive therapy for PTSD: Development and evaluation. *Behaviour Research and Therapy*, 43, 413-431. doi: 10.1016/j.brat.2004.03.006

- Fortney, J. C., Burgess, J. F. Jr, Bosworth, H. B., Booth, B. M., & Kaboli, P. J. (2011). A re-conceptualization of access for 21st century healthcare. *Journal of General Internal Medicine*, 26, 639-47. doi: 10.1007/s11606-011-1806-6
- Gallo, K., Buzzella, B. A., Chan, P., Whitton, S. W., & Pincus, D. B. (2012). The impact of an eight-day intensive treatment for adolescent panic disorder and agoraphobia on comorbid diagnoses. *Behavior Therapy*, 43, 153-159. doi: 10.1016/j.beth.2011.05.002
- Hoge, C., Castro, C., Messer, S., McGurk, D., Cotting, D., & Koffman, R. (2004). Combat duty in Iraq and Afghanistan, mental health problems, and barriers to care. *New England Journal of Medicine*, 351, 13-22. doi: 10.1056/NEJMoa040603
- Jacobson, N. S., & Truax, P. (1991). Clinical significance: A statistical approach to defining meaningful change in psychotherapy research. *Journal of Consulting and Clinical Psychology*, 59, 12-19. doi: 10.1037/0022-006X.59.112
- Kadera, S., Lambert, M., & Andrews, A. (1996). How much therapy is really enough: A session-by-session analysis of the psychotherapy dose-effect relationship. *Journal of Psychotherapy Practice and Research*, 5, 132-51.
- Lambert, M., Hansen, N., Umphress, V., Lunnen, K., Okiishi, J., & Burlingame, G. (1998). *Administration and scoring manual for the OQ-45.2*. Stevenson, MD: American Professional Credentialing Services.
- Larsen, D., Attkisson, C., Hargreaves, W., & Nguyen, T. (1979). Assessment of client/patient satisfaction: Development of a general scale. *Evaluation and Program Planning*, 2, 197-207. doi: 10.1016/0149-7189(79)90094-6
- Lovibond, S.H., & Lovibond, P.F. (1995). *Manual for the Depression Anxiety Stress Scales* (2nd ed.). Sydney: Psychology Foundation.

- Mohr, D.C., Carmody, T. Erickson, L, Jin, L. & Leader, J. (2011). Telephone-administered cognitive behavioral therapy for veterans served by community-based outpatient clinics. *Journal of Consulting and Clinical Psychology*, 79, 261-265. doi: 10.1037/a0022395
- National Institute for Health and Clinical Excellence (2011). *Generalised anxiety disorder and panic disorder (with or without agoraphobia) in adults*. [CG113]. London: Author.
- Norton, P. J., Barrera, T. L., Mathew, A. R., Chamberlain, L. D., Szafranski, D. D., Reddy, R., & Smith, A. H. (2013). Effect of transdiagnostic CBT for anxiety disorders on comorbid diagnoses. doi:10.1002/da.22018.
- Norton, P. J., Klenck, S. C., & Barrera, T. L. (2010). Sudden gains during cognitive-behavioral group therapy for anxiety disorders. *Journal of Anxiety Disorders*, 24, 887-892. doi: 10.1016/j.janxdis.2010.06.012
- Norton, P. J., & Price, E. C. (2007). A meta-analytic review of adult cognitive-behavioral treatment outcome across the anxiety disorders. *Journal of Nervous and Mental Disease*, 195, 521-531. doi: 10.1097/01.nmd.0000253843.70149.9a
- Olatunji, B. O., Cisler, J. M., & Deacon, B. J. (2010). Efficacy of cognitive behavioral therapy for anxiety disorders: A review of meta-analytic findings. *Psychiatric Clinics of North America*, 33, 557-577. doi: 10.1016/j.psc.2010.04.002
- Otto, M. W., Tolin, D. F., Nations, K. R., Utschig, A. C., Rothbaum, B. O., Hoffman, S. G., & Smits, J. A. (2012). Five sessions and counting: Considering ultra-brief treatment for panic disorder. *Depression and Anxiety*, 29, 465-470. doi: 10.1002/da.21910
- Peterson, R. A., & Reiss, S. (1993). *Anxiety Sensitivity Index Revised test manual*. Worthington, OH: IDF.

- Roberge, P., Marchand, A., Reinhartz, D. & Savard, P. (2008). Cognitive-behavioral treatment for panic disorder with agoraphobia: A randomized, controlled trial and cost-effectiveness analysis. *Behavior Modification*, 32, 333-351. doi: 10.1177/0145445507309025
- Schnurr, P.P., Friedman, M.J., Foy, D.W., Shea, M.T., Hsieh, F.Y., Lavori, P.W., ... Bernardy, N.C. (2003). Randomized trial of trauma-focused group therapy for posttraumatic stress disorder: Results from a Department of Veterans Affairs cooperative study. *Archives of General Psychiatry*, 60, 481-489. doi: 10.1001/archpsyc.60.5.481
- Stecker, T., Fortney, J., Hamilton, F., Sherbourne, C. D., & Ajzen, I. (2010). Engagement in mental health treatment among veterans returning from Iraq. *Patient Preference and Adherence*, 4, 45-49. doi: 10.2147/PPA.S7368
- Teng, E.J., Bailey, S.D., Chaison, A.D., Petersen, N.J., Hamilton, J.D., & Dunn, N.J. (2008). Treating comorbid panic disorder in veterans with posttraumatic stress disorder. *Journal of Consulting and Clinical Psychology*, 76, 704-710. doi: 10.1037/0022-006X.76.4.710
- Teng, E. J., Hiatt, E. L., McClair, V., Kunik, M. E., Frueh, B. C., & Stanley, M. A. (2013). Efficacy of posttraumatic stress disorder treatment for comorbid panic disorder: A critical review and future directions for treatment research. *Clinical Psychology Science and Practice*, 20, 268-284. doi: 10.1111/cpsp.12039
- Tolin, D. (2010). Is cognitive-behavioral therapy more effective than other therapies? A meta-analytic review. *Clinical Psychology Review*, 30, 710-720. doi: 10.1016/j.cpr.2010.05-003
- Tsao, J. C., Lewin, M. R., & Craske, M. G. (1998). The effects of cognitive-behavior therapy for panic disorder on comorbid conditions. *Journal of Anxiety Disorders*, 12, 357-371. doi:

10.1016/S0887-6185(98)_00020-6

- Tsao, J. C., Mystkowski, J., Zucker, B., & Craske, M. G. (2002). Effects of cognitive behavioral therapy for panic disorder on comorbid conditions: replication and extension. *Behavior Therapy*, 33, 493-509. doi: 10.1016/S0005-7894(02)80013-2
- Tsao, J. C., Mystkowski, J. L., Zucker, B. G., & Craske, M. G. (2005). Impact of cognitive-behavioral therapy for panic disorder on comorbidity: a controlled investigation. *Behaviour Research and Therapy*, 43, 959-970. doi: 10.1016/j.brat.2004.11.013
- Vujanovic, A. A., Zvolensky, M. J., & Bernstein, A. (2008). Incremental associations between facets of anxiety sensitivity and posttraumatic stress and panic symptoms among trauma-exposed adults. *Cognitive Behaviour Therapy* 37, 76-89. doi: 10.1080/16506070801969039
- Wald, J., & Taylor, S. (2007). Efficacy of interoceptive exposure therapy combined with trauma-related exposure therapy for post-traumatic stress disorder: A pilot study. *Journal of Anxiety Disorders*, 21, 1050-1060. doi: 10.1016/j.janxdis.2006.10.010
- Weathers, F.W., Litz, B., Herman, D., Huska, J., & Keane, T. (1993, October). *The PTSD Checklist (PCL): Reliability, Validity, and Diagnostic Utility*. Paper presented at the Annual Convention of the International Society for Traumatic Stress Studies, San Antonio, TX.
- Young, A. S., Klap, R., Shoai, R., & Wells, K. B. (2008). Persistent depression and anxiety in the United States: Prevalence and quality of care. *Psychiatric Services*, 59, 1391- 1398. doi: 10.1176/appi.ps.59.12.1391

Zinow, H. M., Britt, T. W., McFadden, A. C., Burnette, C. M., & Gillispie, S. (2012).

Connecting active duty and returning veterans to mental health treatment: Interventions and treatment adaptations that may reduce barriers to care. *Clinical Psychology Review*, 32, 741-753. doi: 10.1016/j.cpr.2012.09.002

Zvielli, A., Bernstein, A., & Berenz, E. C. (2012). Exploration of a factor mixture-based taxonomic-dimensional model of anxiety sensitivity and transdiagnostic psychopathology vulnerability among trauma-exposed adults. *Cognitive Behaviour Therapy*, 41, 63-78. doi: 10.1080/16506073.2011.632436

Table 1
Means, Standard Deviations, and Effect Sizes in Outcome Measures Across Time

	Pre-Treatment		Post-Treatment		Effect size* (<i>d</i>)	95% CI	Follow-up		Effect size* (<i>d</i>)	95% CI
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			<i>M</i>	<i>SD</i>		
Panic frequency	5.40	2.46	1.70	1.64	1.80	[0.53, 3.08]	0.71	1.50	2.37	[0.60, 4.14]
Panic fear	4.78	1.96	3.24	2.69	0.66	[-0.14, 1.47]	-		-	-
ASI	39.40	10.84	14.11	9.14	2.53	[1.07, 4.00]	14.14	10.78	2.34	[0.85, 3.82]
PCL-M	65.50	12.99	46.00	12.19	1.54	[0.52, 2.58]	48.29	14.45	1.25	[0.28, 2.23]
OQ-45.2	96.30	22.54	67.67	23.81	1.23	[0.59, 1.88]	68.71	26.04	1.14	[0.06, 2.21]
DASS										
Depression	23.20	12.94	11.44	12.18	0.93	[0.15, 1.72]	10.14	8.53	1.22	[0.05, 2.38]
Anxiety	24.10	6.77	9.78	5.21	2.39	[0.91, 3.87]	7.86	4.60	2.86	[0.99, 4.72]
Stress	29.50	6.67	15.44	9.76	1.71	[0.58, 2.85]	15.29	7.45	2.01	[0.51, 3.51]

Note: Higher scores indicate poorer functioning for all measures. ASI=Anxiety Sensitivity Index, PCL-M=PTSD Checklist-Military version, OQ-45.2= Outcomes Questionnaire 45.2, DASS= Depression Anxiety Stress Scales. Cohen's *d* was calculated by dividing the difference between pre-treatment and post-treatment means (and pre-treatment and follow-up means) by the standard deviation at pre-treatment.

*Effect sizes reported are unadjusted for correlations from repeated measurements

Table 2

Percentage of Participants with Clinically Significant Change

Measure	Reliable change <i>n</i> (%)	Recovered status <i>n</i> (%)
<i>Post-treatment (n=9)</i>		
ASI	6 (66.7)	8 (88.9)
PCL-CV	8 (88.9)	6 (66.7)
<i>Follow-up (n=7)</i>		
ASI	7 (100)	6 (85.7)
PCL-CV	5 (71.4)	4 (57.1)

Note: ASI=Anxiety Sensitivity Index, PCL-CV=PTSD Checklist-Civilian Version