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Integration of peer support and computer-based CBT for veterans with depression

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ABSTRACT

Depressive disorders are a serious public health concern and treatment priority for the Veterans Health Administration. Computer-based Cognitive Behavioral Therapy (cCBT) is an effective intervention for patients with major depressive disorders; however, rates of program completion are an area of concern, which may be improved through the assistance of peers. This pilot study investigated the feasibility of a Veteran-peer assisted cCBT intervention. Participants were patients diagnosed with depression at an Outpatient Mental Health (OMH) or Primary Care Mental Health (PCMH) clinic at a single VHA facility. Participants were paired with a Veteran-peer and given access to a widely used cCBT program via the Internet. Measures of depressive symptoms were obtained at baseline, 4-, and 8-weeks follow-up. Completion rates and program satisfaction were also assessed. At 8 weeks, symptom reductions and completion rates were comparable to study results of brief individual, group CBT, and staff assisted computerized CBT interventions. Significant reductions in depressive symptoms were observed in patients from both clinics, although ratings of program usefulness, relevance, and ease of use were higher for individuals recruited from the PCMH clinic. Peer-assisted cCBT for depression is feasible but further research is needed to determine the clinical efficacy of this approach.

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1. Introduction

1.1. Scope of problem

Depressive disorders are highly prevalent (Kessler et al., 2005) and associated with increased functional impairment (Birnbaum et al., 2010), suicide risk (Ilgen et al., 2010) and mortality (Pan, Sun, Okereke, Rexrode, & Hu, 2011; Pinquart & Duberstein, 2010; Zivin et al., 2012) which pose considerable challenges for healthcare systems such as the Veterans Health Administration (VHA). In 2004, major depressive disorder (MDD) was found to be the third leading cause of disability worldwide (Mathers, Fat, & Boerma, 2008), with several studies demonstrating considerable economic burden through the loss of work time and performance (Birnbaum et al., 2010; Donohue & Pincus, 2007; Wade & Haring, 2010). In the VHA during fiscal year 2010, 975,508 Veterans were *diagnosed* with depression during a clinical encounter in VA mental health or primary care settings, approximately 17% of the 5.6 million Veterans receiving VA health care during that year (Blow, McCarthy, Valenstein, Bowersox, & Visnic, 2010). The cost of health care for these patients was approximately $8.6 billion dollars, of which 26% was for mental health services (Blow et al., 2010). Veterans treated for depression in the VHA have evidenced very high rates of suicide at 93-114/100,000 person-years, which is seven to eight times higher than the general U.S. population (Zivin et al., 2007). Thus depressive disorders pose significant consequences, even among patients who have received some treatment. Therefore ensuring patients with major depressive disorders receive an adequate course of an evidence-based treatment is a health system/public health priority.

1.2. Treatment approaches and delivery

Cognitive Behavioral Therapy (CBT) is an evidence-based treatment for depressive disorders, demonstrating clinical efficacy in both individual (Butler, Chapman, Forman, & Beck, 2006) and

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group-based (Huntley, Araya, & Salisbury, 2012) formats. It has also been effectively delivered by care managers using the telephone (Mohr et al., 2005; Piette et al., 2011), although a recent study reported no significant benefit of telephone-delivered CBT among Veterans receiving depression care in Community-based Outpatient Clinics (Mohr, Carmody, Erickson, Jin, & Leader, 2011). Despite existing evidence-based treatments for depression, many individuals with depressive disorders do not receive them (Birnbaum et al., 2010; Chermack et al., 2008; Wang et al., 2005). Moreover, when treatment is provided, antidepressant medications are used at higher rates than psychotherapy (Marcus & Olfson, 2010), despite the preference of many patients with depressive disorders to receive psychotherapy (Houle et al., 2012; Raue, Schulberg, Heo, Klimstra, & Bruce, 2009; van Schaik et al., 2004). In fiscal year 2003, only 5% of Veterans with new depressive episodes received what might be considered an adequate trial of psychotherapy (Chermack et al., 2008). Additionally, even among Veterans with a depressive disorder who were newly discharged from a psychiatric hospitalization between 2004 and 2008, only 19% received 8 psychotherapy visits within the next 90 days (Pfeiffer et al., 2012). More conservative definitions of psychotherapy adequacy for depression, such as the VA/DOD treatment guideline recommendations for 16–20 sessions over the course of 16 weeks, would likely result in an even smaller number of patients considered to have received adequate care (Department of Veteran Affairs & Department of Defense, 2009).

Unfortunately, there are a variety of health system, provider, and patient-level barriers that may interfere with the delivery of psychotherapy for depressive disorders. To guarantee access, sufficient numbers of psychotherapists need to be employed and trained to ensure fidelity to the evidence-based models, while primary care and mental health clinics need to be designed to promote efficient delivery of these treatments. Patients also face practical barriers to psychotherapy engagement, such as the significant time and travel commitments involved in completing a course of therapy trial, emotional challenges that result from working on distressing issues and behavior change (Mohr et al., 2006), and financial consequences related to travel expenditures and time away from work. Recently, the VHA has made considerable efforts to expand its capacity for delivering evidence-based psychotherapies through large-scale training efforts for its psychotherapists and system-level changes to support the dissemination and implementation of these treatments (Karlin et al., 2010, 2012). However, due to the wars in Iraq and Afghanistan, VHA enrollment and need for mental health services also continue to increase. Despite national efforts to increase access to evidence-based psychotherapies for major depressive disorders, the percentage receiving an adequate course of psychotherapy remains low (6.7%; Department of Veteran Affairs, 2013).

1.3. Computer-based treatment approaches

Alternative avenues for rapidly increasing delivery of evidence-based psychotherapies for major depressive disorders may be needed, including the use of computer-based CBT (cCBT) approaches. Computer-based CBT programs are effective for the treatment of mild to moderate depressive and anxiety disorders, and have often been deployed with little healthcare staff input other than an introduction (Ludman, Simon, Tutty, & Von Korff, 2007; Mackinnon, Griffiths, & Christensen, 2008). Starting in 2008, the National Institute for Health and Clinical Excellence (NICE) recommended that the United Kingdom (UK) include a cCBT program (Beating the Blues) as a first-line treatment option for individuals with mild to moderate depressive episodes (Crabb et al., 2012; National Institute for Health and Clinical Excellence, 2008). Given that the 2010 U.S. Census indicates approximately 80% of the general population, and a greater percentage of young adults, have access to the Internet (U.S. Census Bureau, 2012), this may also be an important approach for depression treatment in the US.

Computer/internet based approaches may play a particularly important role for engaging younger computer savvy Veterans or Veterans who have difficulty engaging in individual psychotherapy due to the need for frequent clinic visits and competing time priorities (Harpaz-Rotem & Rosenheck, 2011; Paddock et al., 2013). The potential value of computer-based treatments to promote rapid accessibility to evidenced-based psychotherapy coupled with the convenience of using them when and where a person prefers, allows for advantages not available from traditional psychotherapy approaches. However, despite literature suggesting that cCBT is effective (Berger, Hammerli, Gubser, Andersson, & Caspar, 2011; Farrer, Christensen, Griffiths, & Mackinnon, 2011; Hoifodt, Strom, Kolstrup, Eisemann, & Waterloo, 2011; Proudfoot, 2004) and some limited literature further suggesting that it is cost-effective (McCrone et al., 2004), uptake in the US has been slow. Similar to in-person CBT, cCBT approaches are challenged with modest completion rates (60–70%; Cavanagh et al., 2006; Learmonth, Trosh, Rai, Sewell, & Cavanagh, 2008), which has been a limiting factor to greater acceptance (Ferriter, Kaltenthaler, Parry, & Beverley, 2008).

1.4. Peer-based approaches

In addition to innovative technological approaches for delivering mental health services, peers may also play an important role in the treatment of individuals with major depressive disorders, and may be an adjunctive approach that can improve current evidence-based practices. There is a broad literature supporting the link between levels of social support and health outcomes (for review Holt-Lunstad, Smith, & Layton, 2010); moreover social support has been found to buffer individuals against stress (Heinrichs, Baumgartner, Kirschbaum, & Ehlert, 2003) and the development of depression (Kilpatrick et al., 2007). Evidence supporting the benefits of naturally occurring social support on depression are extensive, although data are much more limited regarding interventions designed to *facilitate* the provision of social support. Among individuals with serious mental illness, there have been four RCTs assessing usual mental health care with and without added peer support (Davidson, Chinman, Sells, & Rowe, 2006; Eisen et al., 2012; O'Donnell et al., 1999; Solomon & Draine, 1995), of which three provided support for this practice. A meta-analysis of seven randomized controls intervention trials also found facilitated peer-support for individuals with depression was superior to usual care in reducing depressive symptoms (Pfeiffer, Heisler, Piette, Rogers, & Valenstein, 2011).

The VHA has placed increasing emphasis on the roles peers play in mental health treatment (Department of Veteran Affairs, 2008), considering them a key component of recovery-based mental health care (Hogan, 2003; Substance Abuse, 2005). The VHA has also greatly expanded the hiring and deployment of peers across medical centers and large outpatient clinics (Obama, 2012), creating an opportunity to better incorporate peers in supporting patients with mental health disorders such as major depressive disorders. In fact, the VHA is the largest employer of peer mental health specialists in the world and is a healthcare system leader in transformational efforts to become a more recovery-oriented system (Chinman, Salzer, & O'Brien-Mazza, 2012).

Peers can assist Veterans in a variety of ways, such as helping them move towards mental health recovery by providing emotional support, modeling positive growth, informational appraisal, connections to the community, and a recovery orientation (Chinman, Young, Hassell, & Davidson, 2006). One study examining

social support preferences among Veterans with chronic PTSD revealed that patients preferred receiving social support related to trauma-based events from Veterans with similar experiences as compared to family and non-Veteran friends (Laffaye, Cavella, Drescher, & Rosen, 2008). Additionally, from a series of focus groups examining the challenges of peer implementation within the VHA, many health care staff acknowledged that the integration of Veteran-peers in mental health helped enhance patient centered care and increase patient empowerment (Chinman et al., 2008).

Despite advantages of integrating Veteran-peers into mental health treatment, initial research reveals mental health peer specialists report challenges defining their professional roles and job duties within the VHA (Chinman et al., 2008). Moreover, reports from professional clinical staff collected several years after the initial implementation of peer support in VHA also suggests continued ambiguity about Veteran-peers' roles and job duties (Chinman et al., 2012). Thus, mental health interventions that provide opportunities for Veteran-peers to have a clear, unique, and specific role may be important and helpful in incorporating them into VHA mental health treatment.

1.5. Present study aims

The combination of peer support and cCBT could be a low-cost, efficient, and scalable approach to improving care for a very large number of Veterans diagnosed with major depressive disorders. Peer involvement may also make cCBT more palatable to Veterans, resulting in greater rates of initiation and retention, while making efficient use of existing mental health professional resources. The objective of this pilot study was to examine the feasibility of combining Veteran-peer support with an evidence-based cCBT program for Veterans diagnosed with a recent depressive episode and initiating depression care in the VHA.

2. Method

2.1. Participants

Veterans were eligible for the study if they had: (a) a clinical diagnosis of a depressive disorder; and (b) a provider in outpatient mental health (OMH) or primary care mental health (PCMH) clinics. Exclusion criteria included: (a) being identified as high risk for suicide in VA medical chart; (b) having a concurrent psychotic, Bipolar, or Axis II diagnosis in last 12 months; (c) active substance abuse/dependence diagnosis in the prior 12 months; or a (d) history of inpatient psychiatric hospitalization in prior 6 months.

Eligible Veterans were mailed information about the study with an option to opt out at any time. Veterans wishing to participate were contacted by a research team member and completed a modified screen, assessing for the presence of suicidal and homicidal ideation, adapted from the Structured Clinical Interview for DSM-IV disorders (SCID; First & Gibbon, 1997) and Mini Neuropsychiatric Interview (Sheehan et al., 1998). Veterans who remained eligible and interested were scheduled for an enrollment appointment.

A total of 19 Veterans were enrolled in the current study from OMH ($n = 8$) and PCMH clinics ($n = 11$) that were previously or recently diagnosed with a depressive disorder and being treated for a new depressive episode (as indicated by their VA medical record). Participants were diagnosed with Major Depressive Disorder or Depression NOS, with the exception of one participant recruited from PCMH who was diagnosed with Adjustment Disorder, with Depressive Features. Of those who enrolled, 8 also received medication management, and two received other psychotherapy services. The majority of participants were Caucasian ($n = 13$) and male ($n = 17$) with an average age of 50.47 years (SD = 15.04).

2.2. Materials

2.2.1. Computer-based CBT program

The cCBT program, Beating the Blues US version, is an interactive-computer program for the treatment of depressive and anxiety disorders. Beating the Blues teaches both cognitive and behavioral strategies over the course of the following eight modules: (1) Getting Started, (2) Goal Setting and Automatic Thoughts, (3) Common Thinking Distortions in Anxiety and Depression, (4) Changing Unhelpful Thinking, (5) Inner Beliefs, (6) Inner Beliefs (continued) and Attributional Style, (7) Attributional Style (continued), and (8) Conclusion and Coping with Setbacks. Each module is designed to build on prior modules and takes approximately 50 min to complete. The program teaches CBT skills tailored to each user's specific issues or challenges, and is accessed via an internet web-site. This provides patients with the convenience and flexibility of using the program at any time and in any location with internet access.

The Beating the Blues program provides a variety of tracking and assessment functions to help the mental health team monitor and track symptom changes over time. More specifically, the program provides feedback on the number of modules completed, generates e-mail reminders to the user and the mental health team about accessing the program regularly (at least once per week), and allows the administrator to tailor assessment options (i.e., frequency and timing of symptom assessments). Thus, the mental health team can monitor patients, track symptom changes and contact individuals who are not responding to the intervention or engaging with the program. During each module the program assesses the presence of any suicidal or homicidal ideation and level of intent on a 0 through 8 point scale. The mental health team can then set the threshold for receiving an e-mail notification of changes in suicidal thoughts. The program also allows the program administrator to include information about crisis services (e.g., phone numbers, websites, etc.) as another way of assisting users who may develop suicidal thoughts or other emerging needs.

2.2.2. Peer support

Two Veteran-peers were selected as part of the research team to provide support to participants enrolled in the study. Veteran-peers were introduced to participants as fellow Veterans who would be available to assist them with the completion of the cCBT program, as well as to provide support and guidance. Contact with their assigned participants was made at least once per week to check-in and provide any assistance, linkages to relevant resources, and social support, as needed. Veteran-peer contacts with their assigned participants were unstructured, although they received guidance to interact in a natural manner and to encourage completion of the assigned cCBT modules in a warm, supportive, but non-demanding manner. Importantly, Veteran-peers were encouraged not to make completing the cCBT modules the sole focus of their conversations with participants, but instead to consider the encouragement of cCBT module completion as one aspect of an otherwise natural, supportive check-in conversation.

Veteran-peers were not responsible for following more than six participants at a time, as their assigned participants moved through the 8 module program at their own pace. Both Veteran-peers received training in Vet-to-Vet facilitation, the Beating the Blues program, and Without Compensation VA training on privacy, confidentiality, and information security. They also completed the Beating the Blues program and received a copy of the associated instructional manual. Additionally, the Veteran-peers received weekly supervision (in-person or via telephone) from two licensed clinical psychologists to discuss their assigned participant's progress in the program, problems or issues experienced and potential solutions. The psychologists' approach to supervision mirrored the

approach the Veteran-peers were encouraged to take with participants in that it was supportive and included a discussion of participants' progress completing cCBT modules, but also included more general discussions about participants' well-being and potential needs for linkage to resources or social support. To ensure safety, Veteran-peers were provided with specific procedures for contacting clinical research staff in case of emergencies or the development of suicidal or homicidal ideation in any of their assigned participants.

2.3. Instruments

Measures of feasibility included: (a) rates of module completion, (b) participant ratings of the computer-based CBT program's Usefulness, Relevance, and Ease of Use. Participants rated the program Usefulness, Relevance, and Ease of Use after completion of the final cCBT module. Ratings were provided on eight-point scales ranging from 1 to 8 with higher ratings indicative of higher levels of Usefulness, Relevance, and Ease of Use.

Primary psychological outcomes were: (a) depressive symptoms as assessed by the Beck Depression Inventory-Second Edition (BDI-II; Beck, Steer, & Brown, 1996); (b) anxiety symptoms as assessed by the Beck Anxiety Inventory (BAI; Beck & Steer, 1990), (c) hopefulness as assessed by State Hope Scale (SHS; Snyder et al., 1996). All primary psychological outcome measures were collected during the initial enrollment visit, at 4-, and 8-weeks following.

2.3.1. Beck depression inventory

The BDI-II is widely used 21-item measure of depressive symptomotology. Participants are instructed to respond to each item by selecting one of four statements that indicate the intensity with which they experienced a particular symptom over the past two weeks. The BDI-II total score ranges from 0 to 63 (0–13 being considered minimal; 14–19 mild; 20–28 moderate; 29–63 severe depression). Score ranges defined above for the BDI-II severity ratings were used to describe intensity of depressive episodes in the current investigation. The BDI-II has demonstrated excellent internal consistency ($\alpha = .91$) and convergent validity (Dozois, Dobson, & Ahnberg, 1998).

2.3.2. Beck anxiety inventory

The BAI is a common 21-item measure used for assessing an individual's level of anxiety symptomotology. Each BAI item is a description of an anxiety symptom and is rated on a scale of 0–3 with higher scores indicative of greater symptom intensity. The BAI total score also ranges from 0 to 63 (0–9 being considered minimal; 10–16 mild; 17–29 moderate; 30–63 severe), and has demonstrated excellent internal consistency ($\alpha = .92$; Hewitt & Norton, 1993), convergent and discriminant validity (Fydrich, Dowdall, & Chambless, 1992).

2.3.3. State hope scale

The SHS is a six-item dispositional measure of hope. This scale consists of six statements, which require individuals to select a number between 1 (Definitely False) and 8 (Definitely True) that represent how they think about themselves at the time of the assessment. The SHS total score ranges from 6 to 48 with higher scores being indicative of greater levels of hope. The scale has demonstrated good internal consistency and validity (Snyder et al., 1996).

2.4. Design and procedure

Following recruitment, interested participants were scheduled for an enrollment visit where they were scheduled for an enrollment visit where they were informed of all aspects of the study and provided informed consent to participate. Participants were then paired with one of the Veteran-peers. During the enrollment visit, participants were set up with the cCBT program and asked to complete one module per week, but not to complete more than two, as per program recommendations. The treatment program operated for eight weeks (one module per week). To facilitate engagement, the Veteran-peers would contact their assigned participants weekly, while research staff monitored participant progress in the cCBT program online and through discussion with the Veteran-peers. The Internal Review Board and Research and Development committee of the VA Ann Arbor Healthcare System approved this study.

2.5. Data analysis

Data on completion and user satisfaction rates were calculated using descriptive statistics, frequencies and means as appropriate. Initial, 4-, and 8-week primary psychological outcomes were assessed using Repeated Measures ANOVA for each measure (BDI-II; BAI; SHS). Additionally, Mann–Whitney tests were performed to compare mean ratings of cCBT program Usefulness, Relevance, and Ease of Use by recruitment clinic (OMH and PCMH). Secondary analyses for the primary psychological outcomes by recruitment clinic were also performed using Repeated Measures ANOVA. All analyses were completed using SPSS version 20.

3. Results

3.1. Program completion

Of the 19 participants who enrolled in the pilot, 12 (63%) completed the entire eight module cCBT program, and 14 (74%) completed all primary assessment points. Of the seven participants who did not complete all eight modules, two never logged onto the program following enrollment while the others completed between two to six modules. For participants who completed the VA cCBT intervention, eight received medication management (4-OMH; 4-PCMH) and one received brief therapy in PCMH, which consisted of two sessions that occurred on a monthly basis. Reasons for completing fewer than eight modules included computer-related issues (i.e., dial-up Internet connection, incompatible operating system), death from un-related medical issues (one individual), and time conflicts with family and college responsibilities.

3.2. Psychological outcomes

Initial, 4-, and 8-week ratings of the BDI-II, BAI, and SHS are presented in Table 1. Results from Repeated Measures ANOVAs revealed significant reductions in BDI-II scores, $F(2,12) = 4.26$, $p < .05$, partial $\eta^2 = 0.25$, as well as significant increases in SHS, $F(2,12) = 3.57$, $p < .05$, partial $\eta^2 = 0.22$, across assessment time. There was also a trend for decreases in BAI scores, $F(1.293,12) = 2.99$, $p = .09$, partial $\eta^2 = 0.19$.

3.3. Secondary outcomes

Secondary analyses were performed using Mixed Model Repeated Measures ANOVA to determine whether the Veteran-peer assisted cCBT intervention resulted in greater changes in psychological outcomes based on recruitment clinic (OMH vs. PCMH). Results from Repeated Measures ANOVAs on each psychological outcome measure (BDI-II; BAI; SHS) scores across time by recruitment clinic failed to reveal any significant differences, although

Table 1
Mean outcomes across assessment time and recruitment clinic.

Clinic	Measure	Initial *M* (*SD*)	4-week *M* (*SD*)	8-week *M* (*SD*)
Outpatient MH	BDI-II	27.43 (9.91)	24.00 (10.39)	20.43 (8.10)
	BAI	19.71 (8.02)	16.29 (5.62)	12.43 (3.87)
	SHS	24.86 (9.41)	26.57 (8.36)	29.57 (3.36)
Primary Care MH	BDI-II	16.29 (9.84)	12.43 (13.84)	11.57 (16.84)
	BAI	13.00 (15.61)	6.86 (11.82)	6.71 (12.13)
	SHS	27.00 (14.30)	33.14 (12.38)	33.43 (12.82)
Overall	BDI-II	21.86 (11.11)	18.21 (13.20)	16 (13.50)
	BAI	16.36 (12.42)	11.57 (10.15)	9.57 (9.15)
	SHS	25.93 (11.68)	29.86 (10.75)	31.50 (9.22)

Note. The Beck Depression Inventory, Second Edition is from (Beck et al., 1996); the Beck Anxiety Inventory is from (Beck & Steer, 1990), and the State Hope Scale is from (Snyder et al., 1996).
All values represent raw, non-standardized scores.

there was a trend for patients recruited from the mental health clinic to have greater reductions on BDI-II scores ($p = .098$; see Fig. 1).

To assess differences in cCBT preference by recruitment clinic, three Mann–Whitney tests were performed on ratings of cCBT program Usefulness, Relevance, and Ease of Use. The analyses revealed that participants recruited from OMH found the cCBT program less useful, $U = 34.0$, $p < .01$, relevant, $U = 33.0$, $p < .05$, and easy to use, $U = 31.0$, $p < .05$. Despite showing similar changes in symptom-based measures between participants from the two clinics, individuals from the PCMH rated the intervention more favorably.

4. Discussion

To our knowledge this is the first study demonstrating the feasibility of a Veteran-peer supported cCBT intervention (i.e., Beating the Blues) for the treatment of Veterans with mild to moderate depressive episodes in the VHA. Relatively high rates of completion were seen among Veterans initiating this treatment, comparable to or exceeding the rates observed in studies examining in-person individual (Arch et al., 2012; Mohr et al., 2012; Persons, Burns, & Perloff, 1988) and in-person group CBT(Chen, Lu, Chang, Chu, & Chou, 2006), as well as cCBT interventions (for review Kaltenthaler, Parry, Beverley, & Ferriter, 2008). More specifically, completion rates of the current study were similar to other studies investigating the Beating the Blues program using professional staff assistance (Cavanagh et al., 2006; Learmonth et al., 2008).

Relative decreases in depressive and anxiety symptoms were comparable (i.e., approximately 6–12 point reduction BDI-II and 3–8 reduction BAI) with other studies investigating the Beating the Blues cCBT on the treatment of depressive disorders (Ormrod, Kennedy, Scott, & Cavanagh, 2010; Proudfoot, Goldberg, et al., 2003; Proudfoot, Swain, et al., 2003) and other brief individual (Lang, 2003) and group-based CBT studies (Neimeyer & Feixas, 1990; Neimeyer, Kazantzis, Kassler, Baker, & Fletcher, 2008). Studies investigating individual in-person CBT commonly demonstrate larger symptom reductions than cCBT, which may be partially due to difference in the length of each treatment. Participants' level of hope also increased over the course of the present study, and is

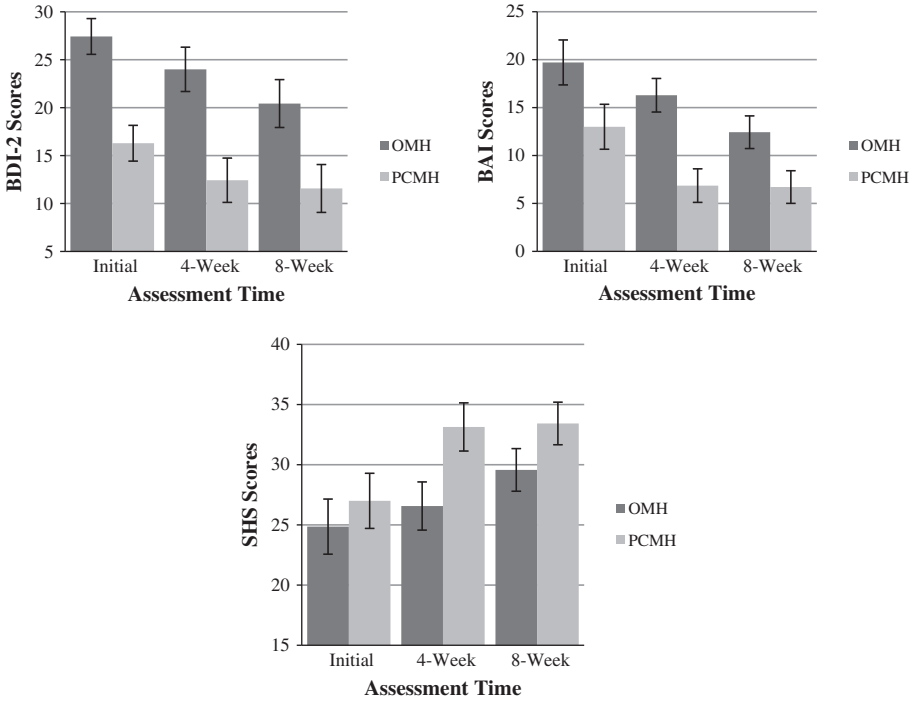

Fig. 1. Psychological outcome measure mean responses by assessment time. Means and standard errors depicted.

arguably one of the most important aspects of a person's perceived recovery (Siu et al., 2012). Hope is thought to be one of the important contributions of peer-based services for individuals with mental health diagnoses (Davidson, Bellamy, Guy, & Miller, 2012) and vital for a person's mental health recovery. We were not able to discern whether changes in outcomes were the result of Veteran-peer support or the Beating the Blues program, or whether similar changes would have occurred without the intervention. However, our results suggest that a Veteran-peer assisted cCBT intervention is feasible, although additional, larger controlled trials are needed to determine the cCBT program's effectiveness as well as the relative contributions of peer involvement in facilitating cCBT program engagement and symptom reductions.

Of note, there were significant symptom reductions and increases in hope in participants recruited from either specialty outpatient mental health (OMH) or primary care mental health (PCMH) clinic settings. Veterans recruited from OMH possessed more intense depressive symptoms than those recruited from PCMH as evidence by higher BDI-II scores. Results demonstrate the intervention's potential effectiveness regardless of the clinic it is used in or the level of symptom severity within the mild to moderate range, as defined by BDI-II symptom severity ranges described earlier (i.e., 14–19 mild; 20–28 moderate).

Veteran impressions of the cCBT at the conclusion of the program were more favorable for participants recruited from PCMH as compared to OMH. Specifically, participants recruited from PCMH rated the intervention as more useful, relevant, and easy to use. Potentially, individuals with more intense symptoms who were seeking treatment in OMH may have preferred greater engagement with a mental health professional as opposed to the Veteran-assisted cCBT intervention. Alternatively, participants from PCMH who predominately had mild depressive symptoms may not have considered their symptoms intense enough to warrant individual psychotherapy requiring frequent visits with a psychotherapist, but when provided the opportunity to engage in a treatment program that could be accessed on their own terms found it to be very useful and relevant. This explanation seems plausible when considering studies showing lower rates of mental health service use for individuals with mild or moderate depressive symptoms as compared to those with more moderate to severe symptoms (Birnbaum et al., 2010; Chartrand, Robinson, & Bolton, 2012). Future studies with larger samples will be needed to elucidate these questions.

The use of cCBT for mild and moderate major depressive disorders is already an applied practice in the United Kingdom's universal health system, and the current findings provide preliminary support suggesting this approach may be a similarly good fit for comprehensive health systems in the US such as the VHA. Additional research is needed to establish the efficacy of this innovative approach pairing Veteran-peers with cCBT to improving access to an evidence-based psychotherapy for major depressive disorders.

Despite the promising findings, there are limitations to the current study that preclude our ability to determine causal inference of the observed outcomes. As this study did not include a control group, it is impossible to determine whether changes in outcomes were the results of the VA cCBT intervention or the product of other factors, including the natural history of the disorder. A subset of participants received concurrent medication management, which also may have accounted for the observed reduction of symptoms in some of the sample. Despite the inherent threats to establishing causal inference, the current pilot study was designed to determine whether a VA cCBT intervention was feasible in a VHA setting with Veterans receiving treatment for new episodes of depression, which was accomplished. Future studies are needed to establish causal inference and determine the effectiveness of such an approach.

5. Conclusions

The current pilot provides preliminary support for the feasibility of combining Veteran-peer support with the Beating the Blues cCBT program. This innovative approach holds promise for improving access to CBT for those with depressive disorders, while defining a potential role for Veteran Peer Support Apprentices (PSA) or Peer Specialists (PS) who are beginning to be deployed to all VHA medical centers and large Community-based Outpatient Clinics nationally.

Although potential cCBT participants should be screened to ensure they are appropriate for the intervention, have compatible computer operating systems, and appropriate Internet connection to help reduce treatment attrition; this intervention may have the potential to improve access, promote treatment engagement, reduce clinician burden, and combine an evidence-based treatment for depression with PSA/PS support. Randomized controlled trials are needed to determine the efficacy of this intervention, and future research is needed to identify the relative contributions of the Beating the Blues programs and Veteran-peer support on treatment outcomes.

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