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An Open Trial of Behavioral Activation in Veterans With Major Depressive Disorder or Posttraumatic Stress Disorder in Primary Care

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ABSTRACT

Objective: Integrated behavioral health programs provide brief evaluations and interventions to patients with psychiatric symptoms in primary care. These programs seek to decrease stigma and improve access to mental health services. Several psychotherapeutic interventions are available to providers, each with its own strengths and weaknesses. One treatment with particular promise is behavioral activation treatment for depression (BATD) due to its potential clinical efficacy, transdiagnostic potential, and ease of dissemination and implementation in primary care settings. The objective of this study was to investigate the efficacy of BATD across 2 *DSM-5* diagnoses: major depressive disorder (MDD) and posttraumatic stress disorder (PTSD).

Methods: Participants were recruited from October 2014 to December 2017. Thirty-one participants were referred from primary care and consented to receive a 12-session trial of BATD. Participants endorsed criteria consistent with a principal diagnosis of either MDD ($n = 20$) or PTSD ($n = 11$). Self-report measures were completed at baseline and immediately posttreatment to monitor treatment progress in symptoms of PTSD and MDD.

Results: Twelve of the 31 participants completed all 12 sessions of BATD, although over 70% completed at least 4 sessions. Participants demonstrated significant symptom improvement across symptoms of MDD and PTSD (all $P < .004$). No disorder group differences were evidenced for symptom reduction, treatment completion, or treatment satisfaction.

Conclusions: The present study provides support for the efficacy of BATD for patients with MDD and PTSD. These findings may have implications for the dissemination and implementation efforts for psychotherapies in integrated primary care settings.

Trial Registration: ClinicalTrials.gov identifier: NCT01947647

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Over the past decade, there has been mounting evidence to support the integration of mental health services in primary care to decrease stigma associated with seeking help for mental health concerns, improve the recognition of mental health concerns in the primary care setting, improve access to mental health services, and increase the number of primary care patients seen for behavioral health concerns.^{1–5} Consultation with an integrated mental health provider is associated with improved mental health symptomatology, including symptoms of depression and anxiety, suicidal ideation, sleep, and overall quality of life,^{6–9} with improvements evidenced in as little as 1 session.¹⁰ Primary care patients seen by an integrated behavioral health provider report high satisfaction with these services and interest in subsequent appointments.^{11,12}

Once a patient enters into integrated care, there are several psychotherapeutic treatment options to address psychiatric symptomatology.¹³ These interventions tend to focus on either general psychiatric symptoms (eg, problem-solving therapy)^{14,15} or disorder-specific treatments (eg, prolonged exposure for primary care or written exposure therapy).^{16,17} Although these treatments have some clear benefits,¹³ psychotherapies that target multiple conditions, namely transdiagnostic psychotherapies, may provide additional benefits in terms of disorder coverage, attention to comorbidity, and ease of dissemination/implementation.^{18,19} Although a few candidate treatments exist,^{20,21} no transdiagnostic treatments have been formally tested in primary care.

One of the best candidates for a transdiagnostic treatment for primary care may be brief behavioral activation treatment for depression (BATD).^{22,23} The model informing BATD suggests that a decrease in positive reinforcement of healthy behaviors is associated with the development of negative affect.^{24,25} In general, BATD involves helping patients monitor their mood and daily activities with the goal of increasing pleasant, reinforcing activities and reducing unpleasant events.^{22,23} BATD is a brief treatment (ranging from 2 to 20 sessions), is efficacious in both individual and group formats, and has demonstrated reliable effectiveness across a wide range of university, community, and civilian clinical samples with major depressive disorder (MDD).^{26,27} Preliminary findings have also shown efficacy for BATD in other disorders such as posttraumatic stress disorder (PTSD) and generalized anxiety disorder.^{21,28,29} In addition, research³⁰ has supported the feasibility of training primary

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Clinical Points

- Behavioral activation treatment for depression is effective for patients referred from primary care.
- Patients with depression or posttraumatic stress disorder evidenced similar symptom improvements in response to receiving behavioral activation.
- Patients reported high satisfaction with behavioral activation across diagnoses.

care providers in cognitive-behavioral therapy (CBT) similar to BATD.

On the basis of these promising findings,^{21–25} additional research is needed to better understand the potential benefits of BATD in primary care and across diagnoses. The present study sought to investigate BATD in veterans with MDD and PTSD referred from primary care. This study used more rigorous methodological procedures (eg, structured diagnostic interview to confirm diagnosis, reliability check for diagnostic interview, standardization of BATD protocol, fidelity checks of BATD delivery) as well as a larger sample compared to previous studies.^{21,28,29,31} We hypothesized that veterans with MDD or PTSD would evidence significant symptom reductions following BATD. On the basis of related research^{32,33} on the overlapping symptoms of PTSD and MDD, no differences in treatment response were predicted across diagnoses.

METHODS

Participants

Participants were enrolled in a study of evidence-based psychotherapy for symptoms of depression and anxiety within a large southeastern Veterans Affairs medical center (VAMC). Study inclusion criteria were (1) competence to complete study consent and procedures, (2) *DSM-5* diagnostic criteria for a principal diagnosis of MDD or PTSD, and (3) participant aged ≥ 18 years. Study exclusion criteria were (1) recent history (≤ 2 months) of psychiatric hospitalization or a suicide attempt, (2) current diagnosis of substance use disorder, (3) acute, severe illness or medical condition that most likely will require hospitalization or otherwise interfere with study procedures, (4) recent start of new psychiatric medication (≤ 4 weeks), and (5) diagnosis of schizophrenia, psychotic symptoms, personality disorder, or bipolar disorder.

Study Procedures

All procedures were approved by the local VAMC research and development committee as well as the institutional review board at the affiliated university. Participants were recruited from October 2014 to December 2017. Project staff advertised the study to local providers in primary care and the primary care mental health integration programs within the VAMC. The study is registered in ClinicalTrials.gov (identifier: NCT01947647).

Of the 82 patients referred to project staff, 52 interested participants scheduled an intake appointment to complete consent documents, evaluate study inclusion and exclusion criteria, and complete diagnostic and self-report measures. Of the 52 potential participants, 31 met study criteria and were assigned to a project therapist to complete 12 weekly sessions of BATD. No participants declined to participate. Participants also completed diagnostic and self-report measures at baseline and immediately posttreatment (1 week after completion of session 12) and were compensated \$20 to complete each. Treatment was delivered in a research facility adjacent to primary care by masters- and doctoral-level project therapists who received extensive training in BATD. Individual sessions were from 45 to 60 minutes in duration. A review of 20% of treatment session recordings, rated on a session-specific 5-point fidelity rating scale, revealed that BATD was delivered with high fidelity (mean = 4.6, SD = 0.6). A published manual²³ on BATD was followed.

Measures

Anxiety and Related Disorders Interview Schedule for DSM-5 (ADIS-5). The ADIS-5³⁴ is a well-established, semistructured interview designed to assess a wide range of psychiatric disorders. The ADIS-5 assesses current and past diagnoses with *DSM-5* diagnostic criteria, severity scores, and lists of feared and avoided situations for the anxiety disorders. The ADIS-5 has demonstrated excellent interrater reliability and validity of affective disorder diagnoses. In the present study, the ADIS-5 was administered by masters- or doctoral-level assessors who had received extensive training on the ADIS-5 (eg, observed delivery of 3 administrations of the ADIS-5 and then administered the interview 3 times under observation). Further, 20% of interviews were scored by a masters-level independent rater who had been trained on the ADIS-5. The findings demonstrated excellent interrater agreement for the targeted diagnoses of MDD (85.0%) and PTSD (100%).

Depression Anxiety Stress Scales (DASS). The DASS³⁵ is a 21-item measure with 3 subscales designed to assess dysphoric mood (depression subscale, DASS-D), symptoms of fear and autonomic arousal (anxiety subscale), and symptoms of tension and agitation (stress subscale). Items are rated on a 4-point Likert scale, ranging from 0 (did not apply to me at all) to 3 (applied to me very much), and summed to compute the 3 subscales. Support for the factor structure and convergent and discriminant validity of the DASS has been found in community samples.³⁵ For the purposes of the present study, only the DASS-D was investigated. The DASS-D demonstrated good internal consistency across assessment points in the present study ($\alpha > 0.84$).

PTSD Checklist for DSM-5 (PCL-5). The PCL-5³⁶ is a 20-item self-report measure that assesses PTSD symptoms (per *DSM-5* criteria) experienced in the last month. Items assess symptoms on a 0 to 4 Likert scale. Total scores range from 0 to 80, with a score ≥ 33 indicating that the

Table 1. Baseline Demographics and Treatment Retention Among Veterans With MDD or PTSD (N = 31)

Variable	MDD (n = 20)	PTSD (n = 11)	Statistic	P
Age, mean (SD), y	43.3 (14.5)	40.4 (12.6)	$F=0.3$	.583
Male, n (%)	13 (65.0)	8 (72.7)	$\chi^2=0.2$	.660
Race, n (%)			$\chi^2=2.9$	.404
White	9 (45.0)	5 (45.5)		
Black	9 (45.0)	5 (45.5)		
Relationship status, n (%) ^a			$\chi^2=4.5$	.214
Single	13 (7.22)	7 (63.4)		
Married	5 (27.8)	4 (36.6)		
Employed, n (%) ^a	6 (33.3)	10 (90.9)	$\chi^2=13.2$	.010
Disabled, n (%) ^b	15 (88.2)	7 (63.6)	$\chi^2=2.4$	.121
Combat theater (OEF/OIF/OND), n (%)	10 (50.0)	6 (54.5)	$\chi^2=1.7$	.795
Referral source, n (%)			$\chi^2=0.6$	.429
Primary care, n (%)	16 (80.0)	10 (90.9)		
No. of completed sessions, mean (SD)	7.5 (4.6)	9.8 (3.4)	$F=1.7$	.201
Completed treatment, n (%)	7 (35.0)	5 (45.5)	$\chi^2=1.8$	.184
STTS-R score, mean (SD)	24.2 (5.0)	29.5 (1.0)	$F=4.2$	.069

^aBased on a total sample of 18 (2 missing).^bBased on a total sample of 17 (3 missing).

Abbreviations: MDD = major depressive disorder, OEF/OIF/OND = Operation Enduring Freedom/Operation Iraqi Freedom/Operation New Dawn, PTSD = posttraumatic stress disorder, STTS-R = Satisfaction With Therapy and Therapist Scale-Revised.

participant most likely has PTSD.³⁶ Previous versions of the PCL-5 have been shown to have excellent internal consistency and excellent test-retest reliability in veterans.³⁷ The PCL-5 demonstrated excellent internal consistency across assessment points in the present study ($\alpha > 0.89$).

Satisfaction With Therapy and Therapist Scale-Revised (STTS-R). The STTS-R³⁸ assesses patients' level of satisfaction with their therapeutic experiences. The STTS-R contains 12 items that represent 2 subscales: satisfaction with therapy and satisfaction with therapist. The measure has been investigated in a large sample of patients receiving group CBT for depressive and anxiety disorders.³⁸ The 2 subscales have demonstrated excellent internal consistency and high positive correlations with indicators of successful group CBT outcomes.³⁸ For the purposes of the present study, only satisfaction with therapy was investigated. The STTS-R demonstrated good internal consistency in the present study ($\alpha = 0.93$).

Data Analytic Plan

All participants were separated into 2 groups based on their principal diagnosis of MDD ($n = 20$) or PTSD ($n = 11$). After identification of the 2 groups, χ^2 tests of independence (for categorical variables) and 1-way analyses of variance (ANOVAs) for continuous variables were used to investigate differences in demographic variables (sex, race, relationship status, employment, disability status, service in Operation Enduring Freedom/Operation Iraqi Freedom/Operation New Dawn, referral source, and age) as well as session attendance, treatment discontinuation, and treatment satisfaction. In addition, analyses of covariance (ANCOVAs) were used to investigate group differences in treatment outcome variables (posttreatment PCL-5 and DASS-D) with the matching baseline symptom measure entered as covariate (pretreatment PCL-5 and DASS-D).

RESULTS

Baseline Demographics

Participants had a mean (SD) age of 42.2 (13.7) years, with the majority being men (67.7%), black (45.2%) or white (45.2%), single-never married (34.5%) or single-previously married (34.5%), and employed (55.2%). Many participants reported being deployed to Operations Enduring or Iraqi Freedom (51.7%) and having a Department of Veterans Affairs service-connected disability (78.6%). The vast majority of participants were referred from primary care (83.9%). On average, participants met diagnostic criteria for a mean of 2.4 (SD = 1.0) affective disorders. On the basis of principal diagnoses, participants endorsed symptoms consistent with MDD ($n = 20$, 43.5%) or PTSD ($n = 11$, 23.9%). The most common additional or comorbid diagnosis was generalized anxiety disorder ($n = 14$, 38.7%).

Demographic variables for the 2 groups are presented in Table 1. There were no group differences in any of the demographic variables (all $P > .12$), with 1 exception. Participants with PTSD (90.9%) reported significantly higher rates of employment compared to participants with MDD (33.3%, $P = .010$).

Treatment Attendance, Completion, and Satisfaction

Of the 31 participants enrolled in BATD, only 14 (45.2%) completed all 12 sessions of the intervention. Participants who prematurely discontinued treatment attended intake only ($n = 4$, 12.9%), 1 session ($n = 1$, 3.2%), 2 sessions ($n = 4$, 12.9%), 4 sessions ($n = 2$, 6.5%), 5 sessions ($n = 3$, 9.7%), 6 sessions ($n = 1$, 3.2%), 7 sessions ($n = 1$, 3.2%), or 10 sessions ($n = 1$, 3.2%). Two participants ($n = 2$, 6.5%) completed all sessions but did not attend the posttreatment assessment. In terms of demographic variables, participants who completed

Table 2. Effectiveness of Behavioral Activation in Veterans With MDD or PTSD (N = 12)

Scale	MDD (n = 7)				PTSD (n = 5)				Between Groups	
	Within-Group Outcome				Within-Group Outcome				F	η_p^2
	Baseline	Last Session	t	d	Baseline	Last Session	t	d		
PCL-5	39.3 (4.6)	23.3 (14.4)	3.0*	1.50	53.2 (12.9)	27.4 (15.7)	13.5**	1.80	0.3	.033
DASS-Depression	12.2 (3.0)	6.1 (5.1)	2.7*	1.46	9.0 (8.0)	2.8 (5.2)	2.3	0.92	0.1	.000

* $P < .05$.** $P < .001$.

Abbreviations: DASS=Depression Anxiety Stress Scales, MDD=major depressive disorder, PCL-5=PTSD Checklist-5, PTSD=posttraumatic stress disorder.

all 12 sessions (mean = 48.0, SD = 15.3) were reliably older than participants who did not complete all 12 sessions (mean = 37.5, SD = 10.4, $F = 5.2$, $P = .03$). The completers and noncompleters of 12 sessions did not differ on any other demographic or symptom variable (all $P < .05$). However, there were no diagnostic group differences in sessions attended, treatment completion, or treatment satisfaction between the 2 patient groups (all $P > .06$).

Treatment Outcome

All within- and between-group treatment findings for the MDD and PTSD groups are presented in Table 2. Paired t tests were used to investigate pretreatment to posttreatment changes in each of the self-report symptom measures. Significant reductions and large effect sizes were evidenced in symptoms of depression and PTSD across all participants (all $t > 3.7$, $P < .004$, $d > 1.13$). When separated by disorder, participants with MDD demonstrated a similar pattern of reductions for PTSD and depression symptoms (all $t > 2.7$, $P < .05$, $d > 1.45$). Participants with PTSD demonstrated significant reductions in PTSD symptoms ($t = 13.5$, $P < .001$, $d = 1.80$) but not in symptoms of depression despite a large effect size ($t = 2.3$, $P = .08$, $d = 0.92$). ANCOVA was used to investigate the efficacy of BATD as demonstrated by posttreatment scores across diagnostic groups (MDD vs PTSD) with the pretreatment scores and employment status entered as covariates. Separate ANCOVAs were run for the PCL-5 and DASS-D. No group differences were observed (all $F < 1.0$, $P > .61$).

DISCUSSION

The present study investigated BATD in participants with MDD or PTSD who were primarily referred from primary care. The findings demonstrated significant treatment effects with large effect sizes across all participants. When participants with MDD and PTSD were investigated separately, similar treatment findings were found for each group, although the statistical significance in the PTSD group for depressive symptoms may have been limited by the group sample size ($n = 7$). No differences were observed across the groups in terms of treatment outcome findings, treatment completion, or treatment satisfaction. Together, these findings support the use of BATD as an efficacious transdiagnostic treatment for patients referred from primary care.

The present findings extend the existing BATD literature in a number of ways. Most notably, the present study used standardized procedures, including diagnostic assessments and fidelity checks, for the treatment delivery. Although the sample of treatment completers was smaller than anticipated, the procedures of the present study improve upon the existing studies^{21,28,29,31} that involved a variable number of treatment sessions, lacked structured diagnostics, or included a less formal presentation of BATD without fidelity checks. Although higher rates of treatment discontinuation have been reported in primary care settings (eg, 50%),³⁹ the observed rate in the present study may have been related to the large number of sessions (12) involved in the protocol, rather than satisfaction or treatment efficacy, with the majority of studies^{14–17,21,29} on psychotherapy in primary care involving fewer sessions. Notably, over 70% of participants in the present study completed at least 4 sessions of BATD, which was shown to be enough sessions to demonstrate significant symptom improvements in another study²⁸ of behavioral activation in veterans. As such, it is possible that some of the participants who discontinued treatment still may have benefited from the treatment, as demonstrated in the literature.⁴⁰

This study also provides further support for the use of BATD in the treatment of symptoms of PTSD.³⁰ Although significant in its contribution to the growing literature on behavioral activation for PTSD,^{21,28,29,41} the present findings are not particularly surprising given the overlap in symptoms between PTSD and MDD.^{32,33} More specific, research^{33,42} on the 2 disorders has indicated that shared symptomatology, related to negative affectivity, may be associated with their high comorbidity and related treatment response. If BATD targets negative affect,^{22–25} reductions in both sets of symptoms and disorders should be expected. In addition, these findings suggest that BATD may be used as a transdiagnostic approach, joining similar transdiagnostic behavioral therapies designed to treat depressive and anxiety disorders.^{43,44}

Finally, these findings have important implications for treatment options in primary care settings. As reviewed earlier, BATD can be delivered in different settings (eg, primary care, university, community) and formats (eg, individual, group, online), in a variable number of sessions (2 to 20 sessions), and by a wide range of health care providers.^{26,27,30} On the basis of these benefits, BATD appears to be a suitable choice for integrated behavioral

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health programs, especially in formats more consistent with the brief interventions provided in these programs.²⁸ Ongoing psychotherapy dissemination and implementation efforts, such as those led by the Department of Veterans Affairs,⁴⁵ should be expanded to include BATD for primary care, integrated behavioral health, and mental health providers to improve patient outcomes across settings and diagnoses.

The study involved several limitations that should be addressed in future studies. The sample size was small given the observed rate of treatment discontinuation, limiting conclusions on the findings for the PTSD group. Additionally, the sample size limited further investigation on the influence of comorbidity in the MDD and PTSD groups.³² Posttreatment measures were only administered to participants who completed the full 12-session protocol, limiting the understanding regarding treatment-related changes to symptomatology and reasons for discontinuation.

Finally, the lack of a control group or no treatment condition limits the interpretation of the findings.

CONCLUSIONS

The present study provided support for the clinical efficacy of BATD for veterans with MDD and PTSD referred from an integrated primary care program. Despite its original design for depressive symptoms, no differences were found in the treatment response in PTSD and MDD symptoms, with similarly large effect sizes. Future studies should investigate shorter versions of BATD in primary care to understand the influence on treatment retention and outcomes. These findings may have implications for the dissemination and implementation efforts for psychotherapies in integrated primary care settings in that BATD addresses multiple psychiatric disorders and related symptoms and is easy to train providers to administer.³⁰

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