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## Activating Veterans Toward Sources of Reward: A Pilot Report on Development, Feasibility, and Clinical Outcomes of a 12-Week Behavioral Activation Group Treatment

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*This pilot study evaluates a 12-week group Behavioral Activation protocol adapted to meet the needs of a Veteran population seeking treatment in an outpatient mental health clinic at a Veteran Affairs Medical Center. In a detailed Method we describe the treatment structure. Acceptability and feasibility are addressed by providing data on referral sources, treatment retention, attendance, and patient satisfaction. Initial clinical outcomes are presented, focusing on symptom reduction, improved quality of life, and changes in the hypothesized mechanism of treatment: improving motivated behavior to pursue rewards (decisional anhedonia). Finally, feedback from individual exit interviews is presented. We conclude with implementation tips and challenges in the service of continuing to improve our evidence-based interventions in Veteran Affairs facilities.*

THE behavioral model of depression (Lewinsohn, Sullivan, & Grosscup, 1980) posits that negative life events lead to sad mood and behavioral withdrawal. Over time, continued behavioral withdrawal decreases opportunities to encounter environmental reward. Absence of environmental reinforcement exacerbates motivational deficits, intensifying depressed mood and furthering avoidance (Lewinsohn et al., 1980). The behavioral model of depression converges with research across animal studies (Salamone, Correa, Farrar, & Mingote, 2007) and human analogues (Hershenberg et al., 2016; Treadway, Buckholtz, Schwartzman, Lambert, & Zald, 2009) supporting *deficits in motivated behavior to obtain reward* as a cardinal phenotype of depression. This body of work suggests that depressed individuals may perceive that the effort needed to achieve a particular goal is too high to justify working for the reward, which may lead them to undervalue the reward and/or simply avoid working to obtain it (Botvinick, Huffstetler, & McGuire, 2009; Cléry-Melin et al., 2011; Sherdell, Waugh, & Gotlib, 2012; Wenze, Gunthert, & German, 2012). Deficits in

motivated behavior to pursue rewards, which we herein-after refer to as *decisional anhedonia* (Treadway & Zald, 2011), is a critical target of intervention in the treatment of depression.

Behavioral activation (BA) is based upon this behavioral model of depression. In BA, an individualized approach helps patients identify and engage in personally meaningful activities that can yield desired outcomes (Jacobson, Martell, & Dimidjian, 2001). BA encourages patients to “act from the outside in,” that is, to make external, planful commitments towards targeted activities regardless of internal emotional states. For example, a patient may have the goal of taking better care of his physical health and increasing opportunities to socialize. Thus, he may sign up to participate in an exercise class at the YMCA rather than stay at home and watch TV, with the hypothesis that following through on this plan would lead to an experience of increased energy and social connection. BA clinicians would try to troubleshoot motivational and avoidance traps to maximize the likelihood of successfully achieving the goal (e.g., how to successfully get dressed and drive to the YMCA even when feeling tired and wanting to stay home and watch TV instead). Thus, BA aims to help depressed individuals decrease avoidant behavior and place themselves in the situations that will optimize the opportunity for reward (Martell, Dimidjian, & Herman-Dunn, 2013).

A major initiative in the Veteran Affairs (VA) Health System has been the promotion of evidence-based

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psychosocial treatments for depression, as depression is a serious public health problem that adversely affects the lives and health of an increasingly large proportion of Veterans (Gros, Price, Magruder, & Frueh, 2012). BA is an empirically supported intervention that is appropriate for patients with greater severity and functional impairment (Coffman et al., 2007; Dimidjian et al., 2006; Dobson et al., 2008) and, as such, may have significant applications for improving access to evidence-based care in VA.

In particular, BA provided in a group context may hold appeal for depressed Veterans because the group format provides opportunities for normalization and is consistent with a military affinity for teamwork and peer support (Whybrow, 2013). Moreover, group treatment models are economical with regard to the ratio of therapists to patients, making them highly feasible for implementation. Unaware of published research or treatment models adapting BA for U.S. Veterans in a group context, we applied the principles of BA to the needs of Veterans presenting for treatment in an outpatient mental health clinic. We did so by creating a behavioral activation group clinic within a PTSD specialty team in a northeastern Veteran Affairs Medical Center (hereinafter referred to as the *Be-Active Clinic*).

We hypothesized the Be-Active Clinic would be effective given previous demonstrations of BA's efficacy in various VA settings (Gros, Price, Strachan, et al., 2012; Jakupcak et al., 2006; Jakupcak, Wagner, Paulson, Varra, & McFall, 2010; Mulick & Naugle, 2004; Wagner, Zatzick, Ghesquiere, & Jurkovich, 2007). Individual BA protocols have been tested ranging from 4 sessions for Veterans recruited in primary care (Gros, Price, Strachan, et al., 2012) to 16 sessions for Veterans recruited specifically for symptoms of PTSD in specialty mental health (Jakupcak et al., 2006). In addition to support for individual BA with U.S. Veterans, there is initial support for *group* BA in Britain with military personnel (Wesson, Whybrow, Gould, & Greenberg, 2014) and primary care patients (Kellett, Simmonds-Buckley, Bliss, & Waller, 2017).

Second, we expected that BA would be effective in this population because Veterans seeking treatment in specialty mental health clinics are a population for whom *decisional anhedonia* (Treadway & Zald, 2011) is ubiquitous. The combination of high rates of depressive disorders, anxiety and stress-related disorders, psychosocial impairment, and comorbid physical conditions frequently leads to the presentation of patients characterized by pervasive behavioral avoidance with limited access to environmental reward. More descriptively, it is common to see Veterans who engage in high levels of behavioral avoidance (and have become withdrawn and sedentary) due to issues such as physical pain, dislike of crowds, trouble sleeping, etc. Patients may report napping during the day, watching excessive amounts of television,

avoiding opportunities to leave the house, and generally limiting opportunities for social connection or a sense of mastery or pleasure. In this regard, the BA treatment model may be a particularly strong fit for the Veteran population.

*The present study.* In a detailed Method we describe the 12-week treatment, noting particular adaptations made for a group setting. We interweave details from a prototypical case to better illustrate the needs of the Veteran population and the treatment strategies in practice.

Acceptability and feasibility are addressed by providing data on ongoing referral sources, treatment retention, attendance, and patient satisfaction. Next, we test the hypothesis that the 12-week group intervention reduces symptoms of depression and PTSD and improves quality of life. Finally, consistent with the hypothesis that BA may work by addressing the underlying decisional anhedonia, we explore if changes in two measures of decisional anhedonia – the Behavioral Activation for Depression Scale (BADs; Kanter, Mulick, Busch, Berlin, & Martell, 2007) and the Environment Reward Observation Scale (EROS; Armento & Hopko, 2007) – relate to symptom change.

## Method

### Treatment Setting

The project was conducted at an urban, northeastern Veteran Affairs Medical Center (VAMC). The Be-Active Clinic was located within a PTSD clinical team (PCT) due to the appointment of the supervising psychologist (J.T.G.). Referrals came from multiple sources, including PCT, general mental health, and an addictions recovery unit. The intervention protocol was conducted with IRB approval and according to the parameters of quality assurance/quality improvement projects at the VA.

### Participants and Procedure

#### *Treatment Providers as a Referral Source*

The Be-Active group received referrals from a number of treatment providers. Specifically, we received referrals from psychologists ( $n = 17$ ), psychiatrists ( $n = 6$ ), and nurse practitioners ( $n = 3$ ) affiliated with outpatient behavioral health teams. These providers readily referred patients, and we very easily accrued a full waitlist by the time we began recruitment for the start of a new group.

#### *Recruitment*

Upon referral by respective clinical providers, the group leader called the Veteran on the phone and provided a brief description of the group. The rationale for the group was explained along with the importance of completing weekly homework assignments to cultivate realistic expectations. Veterans were given reminder

calls 1 to 2 days before the first session and were asked to arrive 1 hour early prior to the first group to complete pretreatment questionnaires.

#### *Patients/Participants*

The sample consisted of 64 individuals treated in 11 different groups from February 2014 to December 2015. These patients were primarily African American ( $n = 43$ ; 67.2%) males ( $n = 54$ ; 84.4%) with an average age of 58.5 (range 26–83, median age 60.5). Over half of the participants had been previously diagnosed with at least one of the following: mood disorder (77%), PTSD (66%), and/or pain disorder (69%); 41% were diagnosed with a sleep disorder. Note that 4 patients re-enrolled in the group for various reasons; in those instances, data were reported based on their second round of participation.<sup>1</sup>

#### *Treatment Providers*

The first author (R.H.), who at the time was a postdoctoral fellow with 7+ years' experience in cognitive behavioral treatments and was supervised by the third author (J.T.G.), led all groups. Three groups were co-facilitated by three different predoctoral clinical psychology interns as part of an Evidence-Based Psychotherapy rotation.

#### *Assessments*

An identical pen-and-paper assessment packet was administered to Veterans prior to the start of the first session and at Week 13, one week after treatment had terminated. We administered the posttreatment assessment in Week 13 to allow for completion of 12 full weeks of active treatment and to reserve the final group session for relapse prevention. Additionally, this methodology provided a more conservative evaluation of group effects (following a 1-week treatment discontinuation).

### **Acceptability and Feasibility**

#### *Treatment Retention and Attendance*

We coded treatment retention and number of sessions completed based on patient attendance in session.

<sup>1</sup> Four patients re-enrolled. The first patient attended one session then needed to re-enroll because of surgery; this patient attended 8 sessions in round 2. The second patient attended 2 sessions then needed to re-enroll because of health; this patient attended 11 sessions in round 2. The third patient kept missing group because of appointments related to his compensation and pension (C&P) claim and attended round 1 only 4 times. At his and his psychologist's request, we allowed him to re-enroll, and he attended 7 sessions in round 2. The fourth patient attended 8 times in round 1 and then missed the final two meetings plus week-13 assessment because he "fell into a depression." At his and his psychologist's request, he re-enrolled in round 2 and again attended 8 times; he did not complete posttreatment questionnaires, however, and is not included in outcome analyses.

#### *Treatment Satisfaction*

We assessed satisfaction with therapy and the therapist using the Satisfaction with Therapy and Therapist Scale–Revised (STTS–R) for Group Psychotherapy (Oei & Green, 2008). Given support for two factors, we summed together six items rating the therapy (e.g., "I am satisfied with the quality of the therapy I received"; "I am now able to deal more effectively with my problems") with the six items rating the therapist (e.g., "the therapist listened to what I was trying to get across"; "the therapist seemed to understand what I was thinking and feeling"). Each item used a 1 (*strongly disagree*) to 5 (*strongly agree*) scale, with higher scores indicating greater satisfaction (total possible range 12–60,  $\alpha = 0.91$ ).

### **Clinical Outcomes**

#### *Symptoms*

The PHQ-9 (Kroenke, Spitzer, & Williams, 2001) and the PTSD checklist (PCL-M; Blanchard, Jones-Alexander, Buckley, & Forneris, 1996), which are both standardized self-report measures, were used to assess symptoms of depression and PTSD, respectively. For the PHQ-9, Cronbach's  $\alpha$  values were 0.87 at pretreatment and 0.86 posttreatment; values were 0.92 at pretreatment and 0.93 posttreatment for the PCL-M. Because this study began prior to dissemination of the PCL-5, we reported findings from PCL-M.

#### *Quality of Life*

We assessed quality of life with the Well-Being and Life Functioning scales of the Behavior Health Questionnaire (Kopta & Lowry, 2002). Three items were totaled to create a score for well-being over the past 2 weeks: "how distressed have you been," "how satisfied with your life have you been?" and "how energetic and motivated have you been feeling?" using a 0 (*extremely distressed/not at all satisfied/not at all energetic and motivated*) to 4 (*not at all distressed/very satisfied/very energetic and motivated*) scale. Four items were totaled to create a score for life-functioning, asking participants to rate over the past 2 weeks how they had been getting along in the following areas of their life: work/school, intimate relationships, nonfamily social relationships/friends, and life enjoyment. These items ranged from 0 (*terrible*) to 4 (*very well*). In our sample,  $\alpha$  for well-being was 0.65 at pretreatment and 0.85 at posttreatment, and  $\alpha$  for life-functioning was 0.70 at pretreatment and 0.82 at posttreatment.

#### *Hypothesized Mechanism of Change*

We assessed decisional anhedonia using two validated measures, the 25-item BADS (Kanter et al., 2007) and the 10-item EROS (Armento & Hopko, 2007; see Manos, Kanter, & Busch, 2010). Both scales have demonstrated adequate psychometric properties (Armento & Hopko, 2007; Manos et al., 2010), though the BADS was improved

upon with a newer short-form (Manos, Kanter, & Luo, 2011). For clinical purposes, we retained the original (lengthier) BADS. Traditionally, greater scores represent higher levels of activation (such as “I did something that was hard to do but it was worth it”) and access to environmental reward (such as, “a lot of activities in my life are pleasurable”). For ease of interpretation, we analyzed reverse-coded scores such that higher numbers reflected greater levels of decisional anhedonia. Alpha in this sample was 0.75 at pretreatment and 0.87 at posttreatment for the BADS and 0.55 at pretreatment and 0.76 at posttreatment for the EROS. Due to the EROS’s low alpha at pretreatment, we dropped the lowest item, though alpha remained the same; as such, we proceeded with analyses but note that findings may warrant additional caution. Note that we did not start administering the EROS until Group 6, which is why there were fewer Veterans who reported data on this measure.

### Specific Adaptations for This Format and Setting

Our intervention builds from the work of Martell and colleagues (2013), as it is a comprehensive BA that targets avoidance behaviors and facilitates coping skills, in addition to activity scheduling and monitoring. Main topics are as follows and reviewed in further detail below:

*Session 1:* Psychoeducation and Orientation to the Group

*Sessions 2–4:* Reinstating Routines and Functional Analyses

*Sessions 5–6:* Identifying Activation Goals

*Sessions 7–12:* Activity Scheduling and Monitoring; Celebrating Successes and Problem Solving Challenges

*Session 12:* Relapse Prevention

### Case Example

“Gary,” a Veteran who benefitted from the intervention and provided consistent data throughout the assessment period, was a 54-year-old African American post-Vietnam era Veteran referred to the Be-Active clinic as part of a systems-based comprehensive treatment. As noted in Table 1, his self-reported symptoms of depression and PTSD at intake were clinically elevated while well-being and life satisfaction were very poor. He was also high on self-reported measures assessing decisional anhedonia. These scores were consistent with his goal for joining the group, namely to improve motivation and “become more adventurous” by participating in a greater number and variety of activities outside of his primary VA facility.

### Psychoeducation and Orientation to the Group (Session 1)

Consistent with BA and nearly all cognitive behavioral therapy models, the first session included a description of the treatment model guiding the intervention. Group members were invited to contrast how their behavior had changed from a time they were feeling their usual self-versus how they had been behaving since feeling depressed. We explained that initial sessions would focus on breaking the link between strong negative emotions and ineffective coping (predominantly avoidance)

Table 1  
Pre- and Posttreatment Scores for Gary and the Clinic

	Gary's Mean	Group Mean	Group <i>sd</i>	<i>t</i>	<i>df</i>	<i>p</i>
PHQ-9 Pre-Treatment	23.00	18.70	4.30	7.13	42	<.0001
PHQ-9 Post-Treatment	6.00	13.00	5.30			
PCL-M Pre-Treatment	78.00	62.20	13.70	6.17	42	<.0001
PCL-M Post-Treatment	49.00	52.80	13.50			
Well-Being Pre-Treatment	4.00	3.40	2.00	-5.28	41	<.0001
Well-Being Post-Treatment	9.00	5.50	2.40			
Life Functioning Pre- Treatment	3.00	4.00	2.40	-5.92	42	<.0001
Life Functioning Post- Treatment	10.00	7.40	2.70			
BADS Pre-Treatment	93.00	91.03	15.70	4.17	41	<.0001
BADS Post-Treatment	68.00	78.06	20.35			
EROS Pre-Treatment	32.00	31.45	3.00	6.11	19	<.0001
EROS Post-Treatment	21.00	26.18	4.12			

*Note.* *sd* = standard deviation; *df* = degrees of freedom; PHQ-9 = self-report assessment of depression with a possible range of 0 to 27; PCL-M = a military-specific self-report assessment of PTSD with a possible range of 17 to 85; Well-being = self-report subscale of the Behavior Health Questionnaire with a possible range of 0 to 12; Life functioning = self-report subscale of the Behavior Health Questionnaire with a possible range of 0 to 16; BADS = Behavioral Activation for Depression Scale, a self-report measure with a possible range of 0 to 150; EROS = Environmental Reward Observation Scale, a self-report assessment with a possible range of 10 to 40. *t*-test compares pre and post-treatment scores for the group data.

behaviors, and the latter part of the group would focus on increasing engagement in adaptive behaviors that facilitate the experience of positive emotions, such as joy and relaxation. To foster realistic expectations in such a symptomatic population, we explained that the goal was to increase the ratio of time they spent experiencing positive compared to negative emotions in a given day. Whereas most identified that at least 90% of a given day was experienced in a state of sadness, fear, anger, guilt, and/or emptiness, the goal of group was to increase their likelihood of spending a few seconds, minutes, or hours with a different affective experience. The pathway to shifting the ratio of time spent experiencing positive emotions would be through intentional behaviors: coping with stress in more effective ways they could be proud of (and that limited further stress) and creating opportunities to experience pleasure, relaxation, social connection, or any other positive emotional state they were seeking. At the close of the session, patients were given a binder that contained all treatment materials, including monitoring sheets for homework.

Gary participated in Session 1 and interacted well with other group members. He shared his goal of “becoming more adventurous.” On a typical day, he had a combination of appointments at the VA. Taking charge of his mental and physical health was empowering, yet at the same time, he stated that he wanted to travel beyond home and the VA, where he felt safe. He identified that his “current self” was characterized by “making excuses,” feeling “lazy,” and wondering if his efforts would be “worth it” or “work out.”

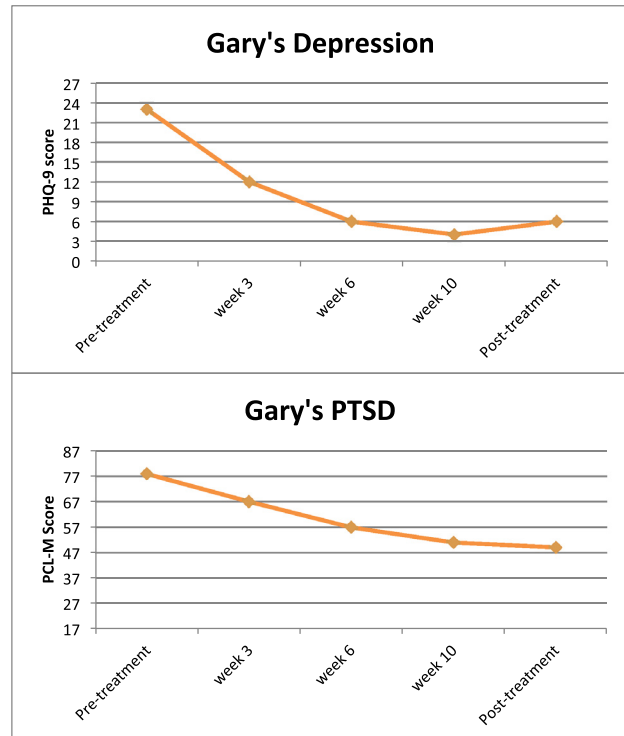
#### *Session Structure for Subsequent Weeks*

#### **Diaphragmatic Breathing**

In Session 2, Veterans were briefly taught diaphragmatic breathing. All subsequent groups began with a breathing exercise, followed by an overview of the day’s session, homework (HW; discussed later) review, and any additional new material. Diaphragmatic breathing was incorporated to help Veterans transition to being task-oriented in the group. Many arrived frustrated (e.g., from parking taking too long). A typical initial demeanor, particularly in early weeks of group, was expressed negative affect (e.g., frowning, arms folded) and difficulty concentrating. Breathing helped to evoke a different affective experience, and the weekly in-session practice helped Veterans remember to use it as a coping skill in daily life (see below, “TRAP monitoring”).

#### **Ongoing Assessment**

In addition to a formal pre- and posttreatment assessment, Veterans were asked to complete the PHQ-9



**Fig. 1.** Gary’s change over the course of the 12-week group as measured by the PHQ-9 (depression; range 0-27) and PCL-M (PTSD; range 17-85).

and PCL-M throughout treatment (typically in the beginning of Sessions 3, 6, 8, and 10).<sup>2</sup> Visual feedback with Excel graphs was provided to the patients the following week, and behaviors between sessions were linked with progress or lack of progress.

Gary’s symptom change is shown in Fig. 1.

#### **Sessions 2–4**

Before addressing activity scheduling and monitoring, which are the cornerstones of BA, we first addressed two main factors that cause interference: irregular routines and avoidance coping.

#### *Addressing Routine Dysregulation (Sessions 2–4)*

From our experience, a typically referred Veteran had dysregulated wake and sleep routines, was sedentary, and had unbalanced eating habits; a subset were also noncompliant with medication. Such routine disruptions

<sup>2</sup>We attempted to include the repeated measures assessments in our analyses of change over time, but cells were too uneven to conduct clinically meaningful analyses. For example, if a patient came late or missed that session, he did not complete it; moreover, though a typical Session 6 did include a symptom assessment, this was not routine across all groups due to time constraints and/or other clinical demands. As such, though this repeated measures assessment was clinically useful, it was not standardized enough for analytic purposes.

could interfere with activity scheduling and monitoring if not addressed (Grandin, Alloy, & Abramson, 2006). Routine regulation is addressed *when necessary* in BA (Martell et al., 2013); in our protocol, we preempted activity scheduling and monitoring with an explicit focus on addressing routine dysregulation.

To do so, we taught the “PLEASE skills” acronym from Dialectical Behavior Therapy (DBT; Linehan, 1993, 2014). We taught Veterans to track each of these domains, focusing on behaviors that were consistent (versus inconsistent): treating *physical* illness (including medication adherence), *exercise*, *avoiding* mood-altering substances, balanced *sleeping*, and balanced *eating*. During HW review, Veterans often reported a few notable modifications in their behavioral repertoire (i.e., successive approximations). Group time was centered on drawing out consequences and reinforcing healthy choices. For example, Gary shared that he was going to work on taking the stairs to the group room rather than use the elevator—no easy task, since our room was on the seventh floor. Another group member was inspired by this idea and decided that she would work on taking the stairs as well, at least part of the way.

#### *Addressing Avoidance Coping by Engaging in Functional Analyses (Sessions 2–4)*

In the same sessions, we also taught Veterans to identify habitual patterns of potentially maladaptive responses to strong negative emotions. The goal was to help the Veteran catch his idiographic process, slow it down, and insert more adaptive coping skills; in most cases, the goal was to choose activation (i.e., still activating toward sources of reward) over avoidance. Consistent with Martell et al. (2013), we introduced the language of “triggers” and “TRAP monitoring” (Dimidjian & Davis, 2009; Hopko, Lejuez, Ruggiero, & Eifert, 2003). Just like routine dysregulation, we elected to teach this skill prior to activity scheduling and monitoring to increase the likelihood of success when the Veteran approached new and challenging situations.

We taught the typical BA TRAP-TRAC monitoring with a slight deviation. TRAP refers to avoidantly coping with the trigger, and TRAC refers to alternatively (and actively) coping with the trigger. After the first round running this group, it became clear that distinguishing “TRAP” from “TRAC” was confusing for the Veterans, as they were prone to report on the same form times when they coped both effectively (TRAC) and ineffectively (TRAP). Thus, we revised the manual so that Veterans were instructed to monitor the following (once per day, every day of the week): Trigger, Response (emotion name, thoughts, body changes), Action Pattern, and Consequences. As such, in our manual, TRAP can refer to either helpful or unhelpful coping, while the identification of the consequences taught participants

to decipher the effectiveness of their behavior—their *action pattern*. The leader repeatedly emphasized that it was solely up to the Veteran to evaluate the consequences, a stance that encouraged Veterans to increase awareness of—and stand behind—their choices.

From TRAP monitoring, individual conceptualizations emerged. For example, some Veterans’ triggers were internal (e.g., thoughts or memories) while others were external (e.g., conflict, driving). Rumination was common, as was anger, conflict with relationship problems, and/or feelings of guilt. Diaphragmatic breathing was a ubiquitous strategy that Veterans began employing during TRAP monitoring, which helped them to “slow down.” For example, Gary noted that stopping to breathe helped him identify his best option in a given moment—“the trick is taking the time to listen.”

#### **Identifying Activation Goals (Sessions 5 and 6)**

Sessions 5 and 6 were guided by the following question: “If you were going to spend your time differently than you have been, what would you do? What matters to you?” To facilitate this guided inquiry, within-group discussions and homework assignments were focused on the following domains: (a) identifying personal values, (b) identifying contexts in which they experience excitement or feel content, (c) identifying natural strengths to guide niche picking, and (d) identifying what behaviors have decreased following trauma and what behaviors have increased (safety behaviors). These exercises were used as a precursor to activity scheduling. Veterans were then encouraged to construct a hierarchy of goals and practice breaking those goals down into smaller steps. We provided concrete and behavioral feedback in session; for example, rather than “be more positive,” a Veteran was prompted to identify that he actually wanted to say “good morning” to his wife at the start of every day.

Gary’s list of activation goals derived predominantly from his valued areas of physical health and hobbies/recreation. He developed specific goals that would help him increase exercise and become more “adventurous” by participating in recreational activities offered outside the VA.

#### **Activity Scheduling and Monitoring (Sessions 7–12)**

All of this preparatory work enabled Veterans to engage in the heart of BA: to increase access to sources of environmental reward vis-à-vis activity scheduling and monitoring. Veterans were taught to complete their own schedulers, which included an opportunity to plan activities from morning until night, and this monitoring was tailored to reinforce BA principles. First, the Veterans

were asked to plan their activity ahead of time as well as to report their *actual* behavior. While it was recognized that sometimes “life gets in the way,” it was also recognized that it may be a “TRAP” deterring the desired behavior. Consistent with the skills learned during functional analyses, Veterans were also taught to identify the function of their activity (pleasure/meet a goal/escape) and to pay attention to qualitative aspects of the activity that impacted their mood (values-consistent, social). Finally, Veterans were taught to track their experienced emotions during their actual activity. We used the affective circumplex (Russell, Weiss, & Mendelsohn, 1989) model of emotions, teaching Veterans to rate their emotions as *high* or *low* on physiological arousal and as *positive* or *negative* valence. Below is an example of how Gary may have completed his scheduler following his attendance at that week’s group.

- **Planned activity:** Group
- **Actual activity:** Group
- **Did a TRAP get in the way (yes/no)?** No
- **Your emotion during activity (Positive or Negative):** P
- **Your emotional arousal during activity (High or Low):** H
- **I did this activity for Pleasure (to feel good), to be Functional (meet a goal), or to Avoid (escape):** P/F
- **Was what I did consistent with my values (yes/no)?** Yes
- **Was what I did a social activity (yes/no)?** Yes

During HW review, we identified fluctuations in daily affect and mapped those changes onto how Veterans were spending their time. Recording “planned” and “actual” activities helped expand awareness of the impact of their current behaviors on corresponding emotions (e.g., by rating their emotions throughout a 4-hour block of TV watching), while also capturing the impact of potentially new behaviors on emotions (e.g., while going to a family member’s house).

As Gary’s symptoms continued to improve in a linear fashion (see Fig. 1), he attributed changes to his willingness to take behavioral risks. For example, he got tickets to see a professional basketball game. He went to the box office and described a series of positive valence/high arousal/pleasurable/social moments that led him to obtain even better seats (after making casual conversation with an employee), enjoy the game, and then spend the entire day outside. He even took the subway home, which he had been reticent to do. Gary was ecstatic about the positive events that he experienced as well as how uplifted his mood was as a consequence of that participation. Gary then shared his positive experiences and enthusiasm with other group members.

### **Problem-Solving Challenges, Celebrating Successes (Sessions 7–12)**

Throughout the weeks of activity scheduling and monitoring, we continuously problem solved challenges and celebrated successes. Celebrating successes was seen as an integral part of the work, consistent with the importance of sharing positive events with others (capitalization; Gable & Reis, 2010; Hershenberg, Davila, & Leong, 2014). We also helped Veterans identify if they were having difficulty initiating activity (consistent with the presentation of *decisional anhedonia*) or enjoying the activity once they began. In our experience, the deficits in approach behavior overwhelmingly dominated session content.

In Gary’s case, he was working to overcome barriers to activation such as feeling “lazy,” uncertainty and apprehension about new activities, and appropriately assertive communication (e.g., saying “no”). By overcoming these barriers he was able to enjoy new activities and use that emotional information to continue to place himself in novel and rewarding situations.

### **Relapse Prevention (Session 12)**

In the final week, Veterans were encouraged to be their own therapists by writing “A therapy manual for myself.” They were prompted to answer questions such as: (1) Clues that I’m not my usual self; (2) typical TRAPs I have fallen into before; (3) strategies I’ve learned to help get out of a TRAP; (4) regular routines that keep me feeling balanced; (5) activities that bring me joy and meaning; (6) do I believe I deserve to feel differently than I have been? If so, why?; (7) what I learned about myself from this group; and (8) what I want my future-self to remember when this group is over. Veterans shared their manuals with one another, which was a powerful, affective experience. Veterans retained all materials from the group in their binder, and they were encouraged to continue to interact with their binders as a form of relapse prevention.

Gary reflected back that using the binder became part of an “inventory of his morning routine” and a tool for being more effective. Learning “to ingrain, ‘oh, here’s a TRAP, oh, now I’m P/H,’” helped him be more inquisitive and encourage himself to be active and approach new things. He said he “just scratched the surface.” He is doing more outside the VA and has more on his list, including going to the beach and traveling.

## **Results**

### **Patient Acceptability and Feasibility**

#### *Treatment Retention*

Among the 64 Veterans who attended Session 1, 54 (84%) completed. Reasons for dropout included transportation problems ( $n = 1$ ), scheduling conflict ( $n = 1$ ), childcare ( $n = 1$ ), poor health ( $n = 1$ ), substance abuse relapse ( $n = 1$ ), impairment from psychological symptoms

Table 2  
Clinical Significance of BA Treatment Response According to Jacobson-Truax Classification

	<b>Recovered</b> (passed cutoff A and RCI criteria in desired direction)	<b>Improved</b> (passed RCI criteria, but not cutoff A)	<b>Unchanged</b> (passed neither cutoff A nor RCI criteria)	<b>Deteriorated</b> (passed RCI criteria in the undesired direction)
PHQ-9*	35%	23%	35%	5%
PCL-M	12%	53%	30%	5%

Note. Jacobson-Truax cutoff A was used. RCI = reliable change index. \*1 participant passed cutoff A but not RCI criteria and is not reflected in the percentages

( $n = 1$ ), death (unrelated to mental health;  $n = 1$ ), and dissatisfaction with the treatment ( $n = 3$ ). Results from Fisher's exact and Wilcoxon signed-rank tests indicated Veterans who dropped out were not demographically different from the rest of the sample (all  $p > 0.05$ ).

#### Attendance

The 64 patients attended an average of 9 sessions (range 1–12). The 54 treatment completers attended an average of 10 sessions ( $SD = 1.66$ , median and modal number of sessions = 10, range 6–12).

#### Treatment Satisfaction

Out of a possible range from 6–30, the average satisfaction with therapy rating was 24.51 ( $SD = 3.95$ ), and the average satisfaction with therapist rating was 27.18 ( $SD = 2.64$ ). Of the 48 respondents who completed the follow-up patient-rated measure of global improvement, 40 patients (83.3%) said treatment made things “somewhat” or “a lot better,” and 8 (16.7%) said therapy “made no difference.” None indicated that therapy made things either “somewhat” or “a lot” worse.

#### Quantitative Assessment of Intervention Effects

After checking data for normality, we conducted paired  $t$ -tests to assess symptom reduction, improved quality of life, and change in decisional anhedonia. To test if symptom changes were clinically significant, we used the Jacobson and Truax criteria (1991), a two-step method in which the first step divides the sample into “functional” and “dysfunctional” populations and the second step computes a Reliable Change Index (RCI) defined as

$$RCI = \frac{X_{i \text{ post}} - X_{i \text{ pre}}}{\sqrt{2(SE)^2}},$$

with  $X_{i \text{ post}}$  and  $X_{i \text{ pre}}$  referring to an individual's post-treatment and pretreatment assessment score, respectively, and  $SE$  corresponding to the standard error of the measurement tool. Using the standard deviation of the pretreatment sample mean ( $s_1$ ) and the reliability of the assessment ( $r_{xx}$ ), the standard error is calculated as

$$SE = s_1 \sqrt{1 - r_{xx}}.$$

We used cutoff A, which considers the “functional” population to be those with posttreatment scores that fall 2 standard deviations or more away from the pretreatment mean (Atkins, Bedics, McGlinchey, & Beauchaine, 2005; Jacobson & Truax, 1991).

Finally, to examine if change in depression related to change in the purported mechanism of action in BA, we calculated Pearson's correlation coefficients to estimate the relationship between change in depression on the PHQ-9 and change on the BADS and EROS.

We present data on change in outcome measures for 43 participants. Data are excluded for 10 who did not complete treatment, 2 who completed but did not return posttreatment questionnaires, and 9 participants whose preintervention scores classified them as having *no depression*.<sup>3</sup>

#### Symptom Change

As shown in Table 1, paired  $t$ -tests indicated statistically significant improvements in depression and PTSD. Clinical significance of symptom change is reported in Table 2. Over half (58%) of Veterans recovered or improved as measured on the PHQ-9 and 65% of Veterans recovered or improved as measured on the PCL-M.

#### Quality of Life

As shown in Table 1, paired  $t$ -tests indicated statistically significant improvements in well-being and life functioning.

#### Mechanism of Action

As shown in Table 1, paired  $t$ -tests indicated statistically significant reductions in BADS and EROS scores. Testing if change in depressive symptoms related to change in the purported mechanism of action in BA, we found partial support. A decrease in PHQ-9 score was not significantly correlated with a decrease in BADS score

<sup>3</sup> These individuals did not significantly differ from the rest of the sample with regard to demographics and psychiatric diagnostic history and maintained primarily stable (and minimal) PHQ-9 scores throughout the duration of the 12-week group with an average change score of -0.25 ( $SD = 2.66$ , median = -1.0, IQR = 3.0). Though these participants were referred to the group by their provider, and they wanted to participate, their data did not provide meaningful information regarding the utility of the intervention in reducing clinically significant symptoms of depression; therefore, these nine individuals were excluded from further analyses.



( $r = 0.23$ ,  $p = 0.10$ ), but a decrease in PHQ-9 score was significantly associated with a decrease in EROS score ( $r = 0.51$ ,  $p = 0.01$ ).

#### *Exit Interview Feedback on the Intervention*

Exit interviews were conducted 1-week posttreatment (Week 13). While Veterans completed their posttreatment assessments, they took breaks to meet individually with the provider and respond to a standard set of interview questions. Exit interview topics and a synthesis of patient responses are reviewed below.

*Feedback on content.* A consensus was that information covered felt relevant. We anticipated that the content could have been perceived as overwhelming, but the preponderance of Veterans appreciated access to the variety of topics they could reference in their binders. The most ardent of challengers to activity scheduling and monitoring HW opened his feedback as follows: “I’m using the planner. It helped me learn to be more of a family man. If I ‘go with the flow’ then I don’t feel like it. Now I stick with my word. My wife sees it too—if I say I’ll do it, then I’ll do it.”

*Feedback on treatment leader.* A consistent message was the importance of the leader being upbeat. Men and women Veterans alike said things such as, “your enthusiasm was contagious” and “you smiled, so you gave us a chance to smile ... If I’m going to learn to try to be happier, I figured I should learn from someone like you.” Another point of common feedback was the importance of the leader being able to actively involve all group members (e.g., “you got the whole group involved and made us feel like part of the group,” “you used your energy to keep us all involved,” and “you did a good job asking specifically from each person—that was really good with me, I know I got more out of the group because of it”). Lastly, participants reported the importance of promoting a sense of genuine and nonjudgmental understanding and concern (e.g., “it felt like you took the time to try to better understand me, which made me want to start expressing myself better”; “you made it enjoyable, so we relaxed and weren’t embarrassed by ourselves—like how I’m reclusive and have bad habits. And you didn’t lecture us—it’s up to each of us to act on it, and to try to keep up the positives”). There was also unanimous support for using a marker board throughout sessions to draw out concepts and write out group members’ answers as a form of interactive visual feedback.

*What are you most proud of over the past 12 weeks?* A few consistent topics emerged, including (1) sticking with the group and showing up every week (e.g., “I made it here

every single week. Each week, I was happy to come. I had initially thought I’d miss a couple just to get out of it”); (2) patient-specific examples of a special outing or experience that often marked a turning point in their improvement; (3) becoming more social or improving preexisting relationships (e.g., “I’m less depressed because I’m spending more time and communicating more around my family”; “I don’t want to be alone as much”; “I’m slowly coming out of my fear of intimacy—I’m spending more time with others, less fearful of others’ responses and more trusting of my own responses”); and (4) gaining important insight into their behaviors (e.g., “the fact that I have a new perspective. I have traps I can get locked into. I can now try to avoid my triggers when possible; and even today, it was hard but I was able to get myself [to group]” and “if I’m aware of what’s going on, I can handle it better”).

*What specific things do you do differently now than you did before/how would you describe to someone the benefit you got from the group?* Veterans named specific and more diverse activities they were engaging in such as starting to exercise, less TV watching (e.g., “I’m reading more, and not sitting on my chair watching war movies—unless they’re educational”), and participating in enjoyable activities (e.g., going out to eat). They also reported improved compliance with health care recommendations (e.g., “I’m wearing my CPAP mask every night now”) and socializing more (e.g., “I notice I’ll be out with people and I have fun. Like last night I was at [local trampoline park] with my nephew”). Veterans frequently reported communicating better with their spouses or children (calmer, less yelling, more listening), ruminating and procrastinating less (e.g., “I don’t sit around and think about negative things anymore the way I used to”; “now I have a meeting with myself in the morning or at night and I ask myself, ‘what am I gonna do the next day’”), and using skills to cope better with stress and anxiety, particularly by breathing (e.g., “I try to practice my breathing”; “not getting violent or yelling, breathing instead”; “breathing before every class really helped—I’m even teaching it to my grandkids”).

*What, if anything, are you disappointed in?* The overwhelming majority gave a unanimous response: “I’m not disappointed in anything.” This response was particularly noteworthy, given that this was, at the start of treatment, a severely depressed group. We included this question to be objective, so as not to selectively abstract the positive gains.

*What will you do next? What has helped you be prepared to do that?* Some discussed next treatments they would participate in (e.g., “I just joined the [weight management]

program. Being in this group helped. Now I will talk when I'm there—before I was afraid to ask questions. Now I'll ask and can express myself"). Others discussed how they would continue to extend the benefits. For example, "now that I have less overdrafts in my bank account, I am looking with my wife for a new place to live." Those who worked or went to school also expressed greater confidence in their roles (e.g., "I am developing new programs, which I know I will keep doing because I stopped breaking appointments"; "I'm being more professional at work, controlling my anger and bouncing back from work gossip"; and "I just started technical school. Now I'm sitting in the front of the class and asking questions. If I started school before the group I would have been depressed and at the back of the class and definitely not asking questions").

### Discussion

We adapted group Behavioral Activation for the needs of a U.S. Veteran population seeking treatment in an outpatient mental health clinic. We did so by extending individual BA principles to a group context.

Main modifications included addressing, up front, factors that might interfere with the core of behavioral activation: activity scheduling and monitoring. We addressed routine dysregulations that can exacerbate emotional dysregulation. This skill set Veterans up to build healthy habits related to eating, exercise, sleep, physical health, and abstaining from drugs/alcohol and consequently served as a starting point for achieving future activation goals. We also taught Veterans to conduct their own functional analyses of emotionally driven behaviors, helping them to understand what triggers withdrawal and how to best meet activation goals. For Veterans consumed by emotional pain (i.e., constantly experiencing triggers for negative emotions), it seemed therapeutically important to have the chance to acknowledge that pain as well as evaluate if how they were coping was serving their best interests long-term.

Our initial outcomes suggest that, overall, the clinic was successful in meeting its goals. Retention was high, and fewer than 5% of participants dropped out because they did not like the treatment. Using fairly conservative Jacobson and Truax criteria for evaluating clinically significant change, we found that 58% of Veterans recovered or improved their symptoms of depression and 65% recovered or improved their symptoms of PTSD.

We also tested if improving decisional anhedonia (i.e., increasing Veterans' engagement in effortful activities to pursue rewards) specifically related to changes in depression. This hypothesis was partially supported. Both measures of decisional anhedonia improved over the course of treatment, though improvement in depression was related to improvement on the EROS but not on the BADS. It is possible that the differential association is

due to measurement error (e.g., we used the BADS and not the psychometrically improved BADS-SF; Manos et al., 2011). A second possibility is that the EROS may offer better specificity in capturing treatment targets. Alternatively, had we included a lengthier follow-up period, results may have been strengthened, as improvement in decisional anhedonia (as operationalized via increases in approach behavior on the BADS) may simply require more time to achieve, a hypothesis that deserves further empirical attention. We consider the EROS and BADS to be easy-to-administer proxy measures of decisional anhedonia; we hope future research will continue to look at their relationship over the course of treatment and follow-up, as well as provide guidelines to integrate these self-report measures with more objective indices of change (e.g., computerized effort tasks and ambulatory assessments of behavior).

Our study provides a heuristic of evidence-based practice, as we systematically modified and tracked outcomes in the novel application of a group BA in VA. Despite this major strength, because we conducted this work in a naturalistic setting, there are notable limitations to interpretations and generalizability. Most important, one provider—who developed the treatment—led all groups. It is thus an empirical question if treatment effects will generalize. Another key issue with regard to generalizability is the age of the patients, with the mean age close to 60. It is important to examine whether findings will generalize across differences in age and era, though initial work in VA by Jakupcak and colleagues suggests that an individual BA protocol tested in a mean age of 51 (Jakupcak et al., 2006) found similar results when tested in a mean age of 28 (Jakupcak et al., 2010).

Second, in this naturalistic setting, we had no active control group and therefore cannot rule out regression to the mean. From tracking change over time with the Veterans, we saw that change took many different shapes—a few demonstrated sudden gains (Hunnicut-Ferguson, Hoxha, & Gollan, 2012), others slowly and steadily decreased, and others remained highly symptomatic until Week 10, at which point they hit their stride with activity scheduling and monitoring and made meaningful reductions by Week 13. While it may appear clear to us that our effects are not just statistical artifacts, future work is critical to rule out the alternative hypothesis that patients got better merely because of the passage of time or because of the nonspecific factors of participating in any type of group.

Next, though we believe that all modifications made to the protocol were within the spirit of behavioral activation and consistent with the core principles of the treatment, future studies should evaluate if beginning with routine dysregulation and functional analyses is a necessary precursor to activity scheduling and monitoring.

Finally, although we measured symptoms of depression and PTSD as well as quality of life, we did not include interview ratings of these constructs, reports of other symptom domains, or longitudinal follow-up of outcomes beyond 1 week.

Limitations notwithstanding, we hope dissemination of these results will contribute to convergent efforts to identify how best to meet the needs of a Veteran population with a hybrid of psychosocial and medical concerns. To facilitate further work in this area, we conclude with implementation tips and challenges that may direct other evidence-based practitioners in this line of work.

### Implementation Tips and Challenges

#### Implementation Tips

1. We recommend keeping the 90-minute length; 1 hour would be insufficient but 2 hours may have been perceived as a burden, particularly during initial recruitment.
2. Like all cognitive behavioral therapy groups, consistent attendance is critical. We believe we kept attendance high because the group leader called any time a Veteran missed group. While recognizing that doing so is a time constraint, it is our working hypothesis that these calls made a profound difference in Veterans' connection to the group and willingness to persist initially when participation felt less reinforcing.
3. Fostering group cohesion was a critical component of the group's success. Part of the healing process, along with between-session HWs, included the *socialization* and *normalization* provided by other group members. Moreover, Veterans often exchanged phone numbers (encouraged when appropriate by the group leader) and began to look forward to seeing one another every week, which became part of their guided activation and commitment to the group.
4. Based on the exit interviews, we learned that a nonjudgmental, compassionate, and curious attitude was a hallmark of the therapeutic alliance. It is easy to fall into a semantic trap of "do more of this," "do less of that," and as a consequence make change feel prescribed (see Castonguay & Beutler, 2006). We avoided falling into that pattern by continually repeating the message that our role as therapist is to share what we know to help them be more successful—it is they who decide what to do next. We also found that appropriate self-disclosure could help to model the message that making change "isn't hard because there's something wrong with you—it's hard for everyone."

#### Challenges

1. Not all patients worked with their binders in a regular manner. Compliance is critical when asking patients to activity schedule and monitor, and it was challenging to give each Veteran the time he/she may have needed to problem solve barriers. Outcomes may have been stronger had we problem solved compliance more fastidiously. One way to improve compliance may be to switch from pen and paper to technology-assisted monitoring, though in the VA in particular, access to user-friendly systems that are IRB-approved may present setbacks.
2. We did not have sufficient time to address patients who had chronic sleep problems, including significant insomnia and nightmares. It is hard to activate a patient who does not sleep at night; though we attempted to address sleep, extreme problems related to sleep warrant their own treatment. If possible, we might recommend a Veteran with chronic insomnia first enrolling in cognitive behavioral therapy for insomnia; if depression remains, group BA could be the next treatment in a staged sequence.
3. Finally, we did not have sufficient time to address patients whose avoidance behavior was primarily due to trauma (avoiding fear-based cues) rather than motivational deficits. BA is in many ways an exposure-based treatment; indeed, an "in vivo" exposure in Prolonged Exposure is often hard to disentangle from a "BA" activity goal. That said, the overall content of group was a better match for those struggling with at least a mixture of motivational and fear-based avoidance, rather than exclusively fear-based avoidance. The rapid pace and number of Veterans in each group presented challenges to taking the time to break down fear-based exposures and review progress in turn.

### Conclusions

We found that the Be-Active group intervention was feasible, acceptable to, and well-liked by participants and referring providers. Although our project was not a randomized trial and did not include some type of low-contact or low-expectation control condition, the improvement experienced by our participants was gratifying and of a clinically meaningful magnitude. Given the high referral rate, low attrition rate, and high level of satisfaction with the treatment experience reported by participants, further studies and applications of this potentially highly cost-effective intervention are encouraged.

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