



4-22-2022

## Comparing Behavioral Activation with and Without a Values Component: A Systematic Review

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### Recommended Citation

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**Comparing Behavioral Activation With and Without a Values Component:**

**A Systematic Review**

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### **Abstract**

Major depressive disorder is one of the most prevalent psychological disorders within the global population and has been for many years. Over the years, numerous interventions have been developed to treat major depressive disorder, including cognitive-behavioral therapy. One form of cognitive-behavioral therapy for depression, known as behavioral activation, focuses on increasing contact with pleasant activities that are reinforcing. Many modifications of behavioral activation have been made over the years, including the version Martell and colleagues (2010) created which modified the traditional approach by decreasing the number of sessions. This new approach, known as brief behavioral activation, also asks clients to clarify their values and then schedule activities in line with these values. The present paper reviews the existing literature on behavioral activation with and without a values component. The literature suggests that behavioral activation with a values component was as successful at reducing depressive symptoms as traditional behavioral activation, often with larger effect sizes overall than traditional behavioral activation.

**Key words:** behavioral activation, major depressive disorder, values

## Introduction

Mental health concerns are a serious and growing issue throughout the United States. In 2021, almost 20% of U.S. citizens experienced symptoms that met criteria for a mental illness (Mental Health National, 2021). One of the most prevalent disorders in the U.S. population is major depressive disorder (MDD). MDD has been defined in the Diagnostic and Statistical Manual of Mental Disorders (DSM; American Psychiatric Association, 2013) since the first published version of the DSM. The fifth edition of the manual with text revisions, DSM-5-TR, characterizes MDD as having the hallmark symptoms of prolonged depressed mood and diminished interest in previously pleasurable activities. Other problems that are associated with the disorder include fatigue, sleep trouble, suicidal ideation, and feelings of guilt and hopelessness (APA, 2013). MDD is also associated with diminished motivation to try out experiences that may be rewarding (Sweet et al., 2021).

According to the National Institute of Mental Health, more than 20 million adults said they experienced at least one depressive episode in the year 2020 (NIMH, 2022). For over 15 years, depression has been the leading cause of disability in the U.S. for individuals aged 15-45 (ADAA, 2021; NIMH, 2022). Studies have shown that MDD is associated with having difficulties in social situations and having a negative orientation towards life and problems that may arise (Klein et al., 2011). Because of the prevalence of MDD, and the impairment associated with it, the identification and implementation of effective treatments is important.

There have been multiple interventions designed to treat clinical depression that have been demonstrated to be effective at reducing function impairing symptoms. These interventions can be divided into two broad categories: psychotherapy and pharmacotherapy. Psychotherapy is a general term used to describe any therapy that treats mental health issues by bringing attention

to the client's mood, behaviors, thoughts, and feelings, followed by the teaching and development of skills necessary to work through their struggles (Klein et al., 2011).

Pharmacotherapy for MDD involves the use of medication, typically antidepressants, to treat mental health issues (Naguy, 2016). Psychotherapy and pharmacotherapy have both been empirically supported as successful treatments for MDD. Cognitive therapy is a form of psychotherapy that teaches clients to identify and challenge negative thinking patterns that contribute to feelings of depression in hopes of alleviating symptoms (Otte et al., 2016).

Components of cognitive therapy have been combined with components of behavioral therapy to create what is known as cognitive-behavioral therapy (CBT). This therapy focuses on changing a patient's cognition with the goal of it leading to positive changes in emotion and behavior (Blackburn, 1981). A specific component of CBT that is used to increase patient's positive experiences in their life is known as behavioral activation (BA; Lejuez et al., 2011). BA was initially developed with the belief that depressed individuals withdraw or even avoid naturally reinforcing activities, which then leads to feelings of a depressed mood. The goal of BA is to create behavioral changes that increase the amount of positive reinforcement received on a day-to-day basis (Jacob et al., 2011). This teaches people with depression that contacting pleasant activities throughout the day and week will lead to improvements in mood, and that this is a more effective strategy than waiting for their mood to improve on its own before they engage in activities.

The first time that this approach was discussed dates back to 1976, when Peter Lewinsohn created a compressive treatment manual that focused on activity scheduling to determine what behaviors a person found reinforcing coupled with social skill training (Kanter et al., 2010). Other aspects of this approach included scheduling times during the day to do the

specified activities while tracking their mood throughout their participation in the activity. Many researchers and clinicians used the manual as a basis to create new treatment plans and form research questions.

Martell and colleagues later developed a brief BA treatment for depression (BATD; Kanter et al., 2010; Martell et al., 2010). Brief Behavioral Activation for Depression (BATD) was originally designed for those in treatment for MDD who would benefit from a more straightforward version of therapy to treat less complex depression or less intensive depressive symptoms (Lejuez et al., 2011). Essentially, the only difference between traditional BA and BATD is the number of sessions required and the individualized values approach BATD takes by having clients focus on activity scheduling within a values-driven framework (Lejuez et al., 2011). Adding the values component to BA allows the person in treatment to evaluate what is most meaningful to them in their lives and then take steps to live in accordance with those values. By adding this component to BA, clients are encouraged to take progressive steps towards living a meaningful life while also achieving treatment goals (Jakupcak et al., 2020). Clarifying values is accomplished through a collaborative process between client and therapist where the client is tasked with evaluating certain life areas (e.g., relationships, education/career, recreation/interests, mind/body/spirit, and daily responsibilities) to determine which aspects are most important to them (Lejuez et al., 2011). Using a values-component with treatment helps the client recognize what activities are in line with the person they want to be which can then be incorporated into daily activity scheduling.

Both BA with a values component and traditional BA have been independently tested and found to effectively decrease depressive symptoms. The different forms of the therapy have not been compared against one another to see if one version has more success at reducing symptoms

than the other. The purpose of the current paper is to review literature on BA with and without a values component in order to inform future research.

## **Methods**

### **Search Strategy**

The author identified English language studies by searching the database PsychINFO. The search terms utilized are as follows: “*behavioral activation*”, “*major depressive disorder*”, “*MDD*”, “*activity scheduling*”, “*values*”, “*depressive symptoms*”, “*depression.*” All searches included “AND” search terms. Publications were limited to clinical trials, component studies and analog studies.

### **Inclusion Criteria**

Studies were divided into two groups for ease of comparison. Studies that involved behavioral activation with a values component group were included if they met the following criteria: a) the article was peer-reviewed; b) participants were above the age of 18 years old; c) participants were diagnosed with major depressive disorder (MDD) or subthreshold depressive symptoms; d) the article included behavioral activation as a treatment; e) the treatment was implemented by professionals or professionals in training; and e) the therapy included a values component.

Studies that involved traditional behavioral activation were included if they met the following criteria: a) the article was peer-reviewed; b) participants were above the age of 18 years old; c) participants were diagnosed with major depressive disorder (MDD) or subthreshold depressive symptoms; d) the article included behavioral activation as a treatment; and e) the treatment was implemented by professionals or professionals in training. One reviewer applied

these criteria to all abstracts and full-text articles to determine if the articles met inclusion criteria for this review.

### **Data Extraction**

The data extracted from all articles included: treatment setting, number of participants, age of participants, pre-screening/baseline measures, treatment design, outcome measures, and the effect size. The effect size of each intervention was determined by comparing baseline scores to post-intervention scores of specific scales used to measure depressive symptoms such as Beck's Depression Inventory-II (BDI-II; Beck et al., 1996).

## **Results**

### **Literature Search**

The initial search using the search terms described above identified 136 articles. After excluding duplicates (n=16), there were 120 articles that remained. Of the 120 articles, 18 (15%) were excluded because BA was not the main therapeutic intervention, 65 (54.1%) were excluded because they used the BA scale but no direct BA intervention, 17 (14.2%) were excluded because they were single case designs, 5 (4.2%) were excluded because they were reviews, 4 (3.3%) were excluded because a professional/in-training professional was not administering treatment and 1 (0.8%) was excluded because it was not an adult population. Among the 10 articles retained, 5 used BA with a values-based framework and 5 used traditional BA.

### **Description of Studies**

The ten studies that were identified used one of three designs: randomized controlled trial (RCT), open trial, or prospective-quasi-experimental. Seven studies (i.e., Crits-Christoph et al., 2021; Hopko et al., 2013; McIndoo et al., 2016; Moradveisi, et al., 2013; Okajima & Chen, 2017; Pellas et al., 2021; Toghyani et al., 2018) used a RCT. Two studies (i.e., Acierno et al., 2012;



Walsh et al., 2016) used an open trial design. And one study (i.e., Estupina Puig & Labrador Encinas, 2012) used a prospective quasi-experimental design. Amongst all ten of the studies, only three had a control group apart of their intervention (Crits-Christoph et al., 2021; Pellas et al., 2021; Walsh et al., 2016).

Four of the studies (40%) used the DSM (American Psychiatric Association, 2013) at the time of the study to define depression or MDD (Walsh et al., 2019; Acierno et al., 2012; Moradveisi et al., 2014; Estupina Puig & Labrador Encinas, 2012). One study used BDI-II (Beck et al., 1996) scores to determine if a participant was qualified to participate rather than the DSM diagnostic criteria (McIndoo et al., 2016). Other depression scales were used as a prescreening to determine eligibility and to measure participants' baseline depressive symptoms including the Harvard Department of Psychiatry/NDS scale (HANDS; Hopko et al., 2013; Baer et al., 2000) and the Quick Inventory of Depressive Symptomatology (QIDS; Crits-Christoph et al., 2021; Rush et al., 1996). One of the studies used questions from multiple scales as a prescreening and baseline measurement (Pellas et al., 2021). The scales used included the Montgomery and Åsberg Depression Rating Scale (MADRS-S; Ntini et al., 2020), Geriatric Depression Rating Scale-15 (GDRS-15; Greenberg, 2007), and the Patient Health Questionnaire (PHQ-9; Kroenke et al., 2001). One of the studies used the Penn State Worry Questionnaire (PSWQ; Meyer et al., 1990) as a prescreening to determine eligibility. The scale focuses on worry because this study defined clinical excessive worry as a transdiagnostic process across both anxiety and depression (Okajima & Chen, 2017).

When recruiting participants, almost all studies used multiple methods to advertise their study. The methods that were used include online advertisements (n=4, 40%), flyers and brochures (n=5, 50%), referrals from professionals (n=3, 30%), recruitment of current or past

patients (n=4, 33%), offered as an option to those seeking treatment for MDD (n=3, 30%), and/or community recruitment (n=2, 20%). One article did not specify their recruitment techniques.

The current articles being reviewed used some form of BA as their treatment intervention. Three of the studies (Crits-Christoph et al., 2021; Estupina Puig & Labrador Encinas, 2012; Moradveisi, et al., 2013) modeled their intervention off the traditional manual for BA while only changing the number of sessions offered. Two other studies used modified versions of the traditional standards of BA, one of which focused on worrying (BAW; Okajima & Chen, 2017) and the other focused on therapeutic exposure (BA-TE; Acierno et al., 2012). Four of the studies (Hopko et al., 2013; McIndoo et al., 2016; Toghiani et al., 2018; Walsh et al., 2019) modeled their intervention off the brief BATD while only altering the number of sessions offered. The final study used a specialized version of BATD for those in primary care (BA-PC; Pellas et al., 2021).

Descriptions of treatment settings, interventions, outcome measures, and effect sizes of the studies are included in Tables 1 and 2.

### **Behavioral Activation with a Values Component Effect Sizes**

All ten of the studies that were included determined that BA had statistically significant effect sizes. Of the five studies that used BA with a values component, two studies used control groups and three studies tested BA with values against another intervention. The first study with a control group (i.e., Walsh et al., 2019) used a between-group open trial design to determine how effective BATD was at reducing depressive symptoms. Their intervention produced medium effect sizes ( $d = 0.49$ ;  $d = 0.43$ ;  $p\text{-value} < 0.05$ ). The second study with a control group (i.e., Pellas et al., 2021) used a between-group RCT study design to determine how effective their intervention was at reducing depressive symptoms. Their intervention produced overall

large effect sizes ( $d = 0.85$ ;  $d = 0.69$ ;  $d = 0.58$ ;  $d = 0.63$ ;  $d = 1.08$ ;  $d = 0.81$ ;  $d = 0.28$ ;  $p$ -value $<0.001$ ).

The other three studies were tested against therapies such as problem-solving therapy (PST), mindfulness-based therapy (MBT), and Islamic Lifestyle Psychoeducation Intervention (ILPI). The study that tested the PST intervention against BATD (i.e., Hopko et al., 2013) found that the PST was more effective at reducing depressive symptoms than BATD, but BATD still produced medium effect sizes ( $d = 1.11$ ;  $d = 0.41$ ;  $d = 0.52$ ;  $p$ -value $<0.001$ ). The study that tested the BATD intervention against the MBT intervention (i.e., McIndoo et al., 2016) found that both interventions produced overall large effect sizes, but BATD produced larger effects ( $d = 0.77$ ;  $d = 1.14$ ;  $d = 0.77$ ;  $d = 0.93$ ;  $d = 0.23$ ;  $d = 0.19$ ;  $p$ -value $<0.05$ ). The study that tested the ILPI intervention against the BATD intervention (i.e., Toghiani et al., 2018) determined that both produced medium effect sizes, but the effect sizes of BA were larger ( $d = 0.73$ ;  $d = 0.53$ ;  $d = 0.56$ ;  $p$ -value $<0.05$ ).

### **Traditional Behavioral Activation Effect Sizes**

All five studies that used an intervention modeled off of traditional BA were successful at reducing depressive symptoms. Three of the studies used a RCT design and two of these studies tested their BA intervention with a control group. One study that tested their BA intervention against a control group (i.e., Crits-Christoph et al., 2021) produced small effect sizes ( $d = 0.35$ ;  $d = -0.49$ ;  $d = -0.27$ ;  $p$ -value $<0.001$ ). The other study that tested their BA intervention against a control group (i.e., Okajima & Chen, 2017) produced large effect sizes ( $d = 0.74$ ;  $p$ -value $<0.01$ ). The other RCT study (i.e., Moradveisi et al., 2013) tested their BA intervention against an antidepressant medication intervention to conclude which was more successful at reducing

depressive symptoms. They determined that the BA intervention was successful at reducing depressive symptoms and it produced a large effect size ( $d = 0.74$ ;  $p\text{-value} < 0.01$ ).

The other two study designs included an open trial and a prospective quasi-experimental design. The open trial (Acierno et al., 2012) consisted of a pilot trial testing their modified version of BA with a focus on therapeutic exposure (BA-TE). Their intervention produced medium effect sizes ( $d = 0.46$ ;  $d = 0.41$ ;  $d = 0.38$ ;  $d = 0.27$ ;  $d = 0.17$ ;  $p\text{-value} < 0.05$ ). The prospective quasi-experimental design (i.e., Estupina Puig & Labrador Encinas, 2012) tested BA against multiple interventions including cognitive therapy (CT), interpersonal therapy (IT), and a clinic intervention that used methods from BA, CT, and IT. This study discovered that their clinic intervention was most successful, but BA still produced large effect sizes ( $d = 2.78$ ).

### **Discussion**

The current review reveals that behavioral activation with a values component may be as successful as traditional behavioral activation at reducing depressive symptoms in people diagnosed with major depressive disorder, or those with subthreshold symptoms. Additionally, BA with a values component had larger effects sizes than traditional BA. Although more research is required, the larger effect sizes may potentially indicate that BA with a values component is more successful than traditional BA. Knowing this information is important for MDD treatment because the differences in effect sizes suggest that the relatively simple addition of a values component could improve the effectiveness of BA treatment for MDD. A randomized control trial that focuses on BA with values versus traditional BA would help to determine which is more efficacious and has the largest treatment effects.

As previously mentioned, MDD is the leading cause of disability in the U.S. for those aged 15 to 45 years old and has been for years (ADAA, 2021; NIMH, 2022). The prevalence of

this disorder is not just bad for those experiencing it, but also for the community, as it has lasting impacts. Because so many people are experiencing disabling depression, it is costly for taxpayers and will continue to be costly until an efficient treatment is in place to treat this group of people. MDD is a disorder that can be treated, so finding the most effective treatment is important for all of society.

Those with MDD can suffer through a plethora of symptoms that have negative effects on the person's cognition. These symptoms range from prolonged depressed mood, diminished interest in previously pleasurable activities, fatigue, sleep trouble, suicidal ideation, and feelings of guilt and hopelessness (American Psychiatric Association, 2013). Having a large range of symptoms means that there is a range of experienced depression. Those who suffer with more symptoms experience more intense depression compared to someone who suffers with less symptoms. Because of this, learning which therapy is more effective is important for society and for those suffering. A person with MDD feels better when they are experiencing fewer depressive symptoms. Therapy is not always capable of completely removing experienced symptoms, so finding the therapy that reduces the symptoms the most means a person with MDD will know which therapy will help them feel the best. The findings from this review suggest that BA with a values component is more effective at reducing depressive symptoms. This is important for the mental health field because it potentially means that BA with a values component should replace traditional BA when treating someone with MDD.

There are no studies that directly compared BA with a values aspect and traditional BA, so future researchers should complete a randomized control trial directly comparing the traditional BA intervention to the BA with a values component intervention. Future researchers should also study the duration of time it takes for a patient to experience meaningful reductions

of depressive symptoms with each therapy. Learning which specific therapy is the most effective in terms of reducing experienced symptoms in the quickest amount of time is meaningful for many reasons. From the patient's perspective, finding out this information is important because it directly translates to how quickly and effectively, they will notice improvements. From a financial perspective, the quicker that symptoms are reduced the fewer therapy sessions a patient would need to attend. Therapy sessions can be expensive, so the fewer number of sessions makes therapy more financially obtainable to the general public. This information is important for the greater community to learn as well because taxpayers are often the direct financers of public services such as disability. Some disabilities are lifelong without the chance of improvement. MDD is a disability that can improve with adequate treatment. Therefore, more research is needed to learn how to treat the disorder most efficiently.

There are a few limitations to this review. Some of the studies lacked descriptive and follow up data that may have been important to know. Another limitation to this review is that it is not empirical. Analyzing the data extracted from the reviewed articles will demonstrate if BA with a values component truly is more effective at reducing depressive symptoms.

Of all the included literature, the participants and research settings were inconsistent between one another making the findings from this review inconsistent within each population of people. Some studies had as few as 24 participants while others had much larger groups. Having few participants makes the findings less generalizable to the general population. The participants from some studies were not excluded if they had a comorbid disorder with MDD while there were also studies that excluded participants if they had any other disorders or symptoms of disorders. Some of the studies' main focus was using BA to treat MDD with a comorbid disorder such as psychosis, anxiety, PTSD, and substance abuse. Having comorbid disorders can have an

influence on treatment success if the treatment is for a specific disorder. However, MDD tends to have a high comorbidity rate so it would be appropriate for interventions to adjust for other experienced symptoms.

This review suggests that behavioral activation with a values component has larger effect sizes than traditional behavioral activation at reducing symptoms of major depressive disorder. The larger effect sizes seen in behavioral activation with a values component could mean that it has larger treatment effects than traditional behavioral activation. This conclusion is limited by the fact that there is no research comparing the different models of behavioral activation directly. It is important to learn which is the more effective version of the therapy to inform therapists and clinicians on the best way to treat their clients.

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**Table 1**

*Description of Studies - Behavioral Activation with a Values Component*

Source/year	Treatment Setting	Participants	Age	Pre-Treatment Details	Treatment Details	Outcome Measures	Effect Size
Walsh et al., 2019	Psychological service centers of Duke University & University of North Carolina – Chapel Hill	33 outpatients with MDD (29% male, mean=31)  20 nondepressed controls (30% male, mean=31)	20-45	Experimental group met criteria for DSM-IV-TR. Participants completed an MRI scan & imaging protocol.	Control group vs. BATD  Up to 15 sessions of BATD (average 11.67; range 2-15).  Completed positive emotional regulation task during fMRI.	Measured using BDI and section breakdown from scale	<u>BDI: 0.49</u> <u>BDI anhedonia: 0.43</u>  p-value<0.05
Hopko et al., 2013	University of Tennessee Medical Center’s Cancer Institute	80 adults with breast cancer & principal diagnosis of MDD	18-68	Participants scored a 9 or higher from the HANDS and were administered ADIS-IV.	BATD vs. PST  BATD along with establishing patient rapport, motivational exercise, depression/breast cancer psychoeducation & intro of treatment rationale.  PST goal is to increase understanding	Measured using CESD, BDI-II & HRSD	<u>CESD Effect Size</u> BATD: 1.11 PST: 1.20  <u>BDI-II Effect Size</u> BATD: 0.41 PST: 0.54  <u>HRSD Effect Size</u> BATD: 0.52 PST: 0.80  p-value<0.001

connection between depression and everyday problems, increase ability to accurately define problems, learn specific problem-solving skills & create more positive experiences through improved problem-solving.

McIndoo et al., 2016	University of Tennessee	50 college students (19 male, 31 female) with significant depression or MDD	18-21	Pre-screened for depression using BDI-II & ADIS-IV.  Also assessed for current engagement in mindfulness practices.	BA vs. MBT  Modeled after BATD: Reduced to 4 sessions & removed life value assessment areas such as employment and political activities. Focused on mindfulness meditation and other activities.  MBT was modeled after MBSR program.	Measured using BDI-II, HRSD, PSS, RRS, FFMQ & BAI	<u>BA Effect Sizes</u> BDI-II: 0.77 HRSD: 1.14 PSS: 0.77 RRS: 0.93 FFMQ: 0.23 BAI: 0.19  <u>MBT Effect Sizes</u> BDI-II: 0.68 HRSD: 1.03 PSS: 0.60 RRS: 0.87 FFMQ: 0.68 BAI: 0.32  p-value<0.05
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Toghyani et al., 2018	Isfahan psychological service centers	24 patients with MDD	20-50	<p>Participants had to be diagnosed with MDD using the DSM-V.</p> <p>Also used BDI-II for assessment of current symptoms.</p>	<p>ILPI vs. BA</p> <p>The ILPI was 10 sessions that focused on healthy lifestyle based on Islamic teaching. Specifically on the importance of life balance, nutritional education, physical exercise, sleep hygiene, religious involvement, social interactions, recreation activities &amp; relapse prevention (if applicable).</p> <p>The BA therapy was 8 sessions of group therapy based off BATD.</p>	<p>Measured using BDI-II, BHS &amp; PSWQ</p> <p>ILQ also used for ILPI group</p>	<p><u>ILPI Effect Sizes</u></p> <p>BDI-II: 0.54 BHS: 0.43 PSWQ: 0.35</p> <p><u>BA Effect Sizes</u></p> <p>BDI-II: 0.73 BHS: 0.53 PSWQ: 0.56</p> <p>p-value&lt;0.05</p>
Pellas et al., 2021	Vastmandland, Sweden  At home intervention	41 participants with clinically significant symptoms of MDD	65+	<p>Participants needed to score a 12 or higher on MADRS-S and/or score a 9 or higher on PHQ-9 and/or score a 5 on GDS-15.</p>	<p>Control group vs. BATD</p> <p>Treatment was modeled after BATD and occurred over a 4-week period.</p> <p>Also includes a mental imagery component.</p>	<p>Measured using MADRS-S, GDS-15, PHQ-9, GAD-7, BADS-SF, Psi-Q &amp; WHODAS-12</p>	<p><u>Treatment Effect Size</u></p> <p>MADRS-S: 0.85 GDS-15: 0.69 PHQ-9: 0.58 GAD-7: 0.63 BADS-SF: 1.08 Psi-Q: 0.81 WHODAS-12: 0.28</p>

Also used  
 MINI  
 structured  
 clinical  
 interviews to  
 assesses  
 psychiatric  
 disorders.

p-value<0.001

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*Note.* Summaries of studies that used behavioral activation with a values component including the treatment setting, the participant descriptions, the baseline and pre-screening measures, the treatment details, the outcome measures, and the effect size. Effect sizes were determined by comparing pre-treatment and post-treatment scores.

*Abbreviations:* DSM-IV-TR = Diagnostic and Statistical Manual of Mental Disorders, fourth edition, text revision; MDD = Major Depressive Disorder, BATD = Brief Behavioral Activation for Depression; BDI/BDI-II = Beck's Depression Inventory; HANDS = Harvard Department of Psychiatry/NDSM scale; ADIS-IV = Anxiety Disorders Interview Schedule, fourth edition; PST = Problem-solving Therapy; CESD = Center for Epidemiological Studies Depression; HRSD = Hamilton Depression Rating Scale; MBT = Mindfulness-based Therapy; MBSR = Mindfulness Based Stress Reduction; PSS = Perceived Stress Scale; RRS = Rumination Response Scale; FFMQ = Five Facet Mindfulness Questionnaire; BAI = Beck's Anxiety Inventory; ILPI = Islamic Lifestyle Psychoeducational Intervention; BHS = Beck's Hopeless Scale; PSWQ = Penn State Worry Questionnaire; ILQ = Impact on Life Questionnaire; MADRS = Montgomery and Åsberg Depression Rating Scale; PHQ-9 = Patient Health Questionnaire-9; GDS-15 = Geriatric Depression Rating Scale-15; GAD-7 = Generalized Anxiety Disorder-7; BADS-SF = Behavioral Activation for Depression Scale – Short Form; Psi-Q = Plymouth Sensory Imagery Questionnaire; WHODAS-12 = WHO Disability Assessment Schedule-12

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**Table 2**

*Description of Studies - Behavioral Activation without a Values Component*

Source/year	Treatment Setting	Participants	Age	Pre-Treatment/ Baseline Details	Treatment Details	Outcomes	Effect Size
Acierno et al., 2012	Medical University of South Carolina	26 people who were seeking counseling services with bereavement issues (22 women, 4 men)	47-83	Participants were included if they scored a 13 or higher on the CGA and if they have at least 1 risk factor for CB.	Pilot trial testing BA-TE  BA-TE consists of completing their daily planner which consisted of scheduling positively & negatively reinforcing behaviors and exposure-based behaviors.	Measured using GAI, PTSD & MDD symptom count, BDI & SF-36	<u>BA-TE Effect Sizes</u> GAI: 0.46 PTSD symptom count: 0.41 MDD symptom count: 0.38 BDI: 0.27 SF-36: 0.17  p-value<0.05
Crits-Christoph et al., 2021	Community mental health clinic in Philadelphia	80 adults seeking services who met criteria	18-65	Participants were included if they scored at least an 11 on the QIDS or met DSM-V diagnosis criteria.	Control group (TAU) vs. BA  BA was modeled off the traditional manuscript. The purpose is to identify activities and contexts that are reinforcing and consistent with an individual's long-term goals. This is done through self-monitoring, structuring/scheduling activities, rating degree	Measured using HAM-D, BADS & RPI	<u>HAM_D</u> Effect size: 0.35 <u>BADS</u> Effect size: -0.49 <u>RPI</u> Effect size: -0.27  p-value<0.001

of pleasure and accomplishment experienced.

TAU consisted of an unspecified psychotherapy.

Moradveisi et al., 2014	Psychological service center in Sanandaj, Iran	100 patients with MDD (85 women)	18-60	Participants were included if they had a diagnosis of MDD according to the DSM-IV-TR. This was then confirmed by the SCID-CT.	BA vs. ADM  The BA intervention was based off the traditional manuscript. There were 16 sessions that occurred over a 12-week period.  The ADM intervention was done by giving sertraline to the group's participants.	Measures using HRSD & BDI-II	<u>ADM Effect Size</u> BDI: 0.19 HRSD: 0.09  <u>BA Effect Size</u> BDI: 0.24 HRSD: 0.20  p-value<0.001
Estupina Puig, F. & Labrador Encinas, F., 2012	University Psychology Clinic of UCM	69 patients with MDD	18-73	The participants were included if they met DSM criteria.  The interviews conducted were semi-structured using questions from the BDI-II, BAI and/or SCL-90-R.	BA vs. CT vs. IT vs. Clinic  The BA intervention focused on problem solving and social skill training. The CT intervention focused on cognitive restructuring and social skill training.	Measured using BDI-II, BAI & SCL	<u>BA</u> : 2.78 <u>CT</u> : 1.94 <u>IT</u> : 2.17 <u>Clinic</u> : 3.12  p-value<0.001

The IT intervention focused on coping with bereavement loss, role transitions, and other interpersonal difficulties. The Clinic’s intervention used skills from all the 3 other intervention for treatment.

Okajima, I. & Chen, J., 2017	Waseda University, Japan	49 adults	18-65	Participants were included if scored a 55 or higher on the PSWQ*.	Control group vs. BAW  The BAW intervention was modeled off the traditional manuscript but also focused on functional assessments of worry and improving sleep hygiene.	Measured using ISI, PSWQ, DASS, CBAS, IUS & WSAS	<u>BAW</u> : 0.74 <u>Control</u> : -0.23  p-value<0.01
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*Note.* Summaries of studies that used behavioral activation without a values component including the treatment setting, the participant descriptions, the baseline and pre-screening measures, the treatment details, the outcome measures, and the effect size.

Effect sizes were determined by comparing pre-treatment and post-treatment scores.

*Abbreviations:* CGA = Comprehensive Geriatric Assessment; CB = Complicated Bereavement; BA-TE = Behavioral Activation with Therapeutic Exposure; GAI = Generalized Anxiety Index; PTSD = Post Traumatic Stress Disorder; MDD = Major Depressive Disorder; BDI = Beck’s Depression Inventory; SF-36 = Short Form Survey-36; QIDS = Quick Inventory of Depressive Symptomatology; DSM-V/ DSM-IV-TR = Diagnostic and Statistical Manual of Mental Disorders, fifth edition/fourth edition, text revision; TAU = Treatment As Usual; BA = Behavioral Activation; HAM-D/HRSD = Hamilton Depression Rating Scale; BADS = Behavioral Activation for Depression Scale; RPI = Recovery Process Inventory; SCID-CT = Structured Clinical Interview for DSM – Clinical Trial Version; ADM = Allen Diagnostic Module; UCM = Universidad Complutense de Madrid; CT = Cognitive Therapy;

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IT = Interpersonal Therapy; SCL/SCL-90-R = Symptom Checklist; BAI = Beck's Anxiety Inventory; PSWQ = Penn State Worry Questionnaire; BAW = Behavioral Activation for Worry; ISI = Insomnia Severity Index; DASS = Depression Anxiety Stress Scale; CBAS = Cognitive-Behavioral Avoidance Scale; IUS = Intolerance of Uncertainty Scale; WSAS = Work and Social Adjustment Scale

\*This study defines clinical excessive worry as a transdiagnostic process across both anxiety and depression.

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