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Pilot Study of Behavioral Activation as Adjunct Treatment for Depression in Primary Care

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Abstract

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Many individuals receiving care at a predominantly free primary health care clinic in the northern part of West Virginia are experiencing depression, and medication therapy is the most common form of management with limited resources for psychosocial treatment. Brief psychosocial therapy interventions provided by the primary care provider should be explored as an adjunct treatment for this population in the primary care setting.

A pilot study was conducted to explore the integration of behavioral activation, a brief psychosocial intervention focused on decreasing depressed behavior by increasing nondepressed behavior to reinforce corresponding improvements in mood. Eligible patients were invited to attend five sessions once for five weeks. Visits were conducted according to the revised manual for Behavioral Activation Treatment for Depression. Data collection included measurements for adherence to treatment, PHQ-9, and BADS scores.

Three primary aims were evaluated for this project: 1) To assess the feasibility of implementing this intervention in this clinic population; 2) To decrease overall PHQ-9 scores and increase overall BADS scores; and 3) To increase medication adherence in conjunction with a psychosocial intervention.

The feasibility evaluation of this project was performed according to Bowen's feasibility criteria and showed mixed results. Data suggests there was no statistically significant difference in depressive symptoms or daily functioning but minor improvements were noted, indicating potential clinical significance. Limitations of this study included low patient enrollment and the COVID-19 pandemic. Future research could include implementation of this intervention in an integrated care center, larger clinic, or with a different clinic population.

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Introduction

Depression is a prevalent illness in West Virginia (WV DHHR, 2018). Many individuals receiving care at a predominantly free primary health care clinic in the northern part of the state are experiencing depression, and medication therapy is the most common form of management as there are limited resources for treatment like psychiatry or formal counseling. Despite medication management, a noticeable amount of depression screenings for ongoing monitoring show moderate to severe depression scores without improvement. Psychosocial therapy delivered by primary care providers should be explored as an adjunct treatment for this population in primary care settings. Current practice must be modified to improve depressive illnesses and their sequela in this population as patients with untreated depression suffer from greater comorbidities and earlier mortality than their non-depressed counterparts (Coryell, 2018).

Background

A diagnosis of major depressive disorder (MDD) requires the presence of five or more symptoms over a two-week period that include either depressed mood or anhedonia (American Psychiatric Association [APA], 2013). People with major depression may experience a lack of interest or pleasure in daily activities, significant weight loss or gain, insomnia or excessive sleeping, lack of energy, inability to concentrate, feelings of worthlessness or excessive guilt, and recurrent thoughts of death or suicide (American Psychological Association, 2020). According to the Center for Disease Control (CDC, 2015) between the years 2013 and 2016, 8.1% of Americans aged 20 and older were diagnosed with depression.

Significance of Project

The lifetime prevalence of major depression in the United States is 17% (Krishnan, 2019). The prevalence of depression in West Virginia is significantly higher at 23.8% (WV DHHR, 2018). Depression is associated with coronary heart disease (CHD), diabetes mellitus (DM), Parkinson's disease (PD), stroke CVA), and dementia (Coryell, 2018). These associations could be due to the disease process itself or impaired functioning related to the disease (Krishnan, 2019). Depression is also associated with earlier mortality. People with serious mental illnesses die about 25 years earlier than the general population (Mauer, 2006). Studies show that the likelihood of mortality due to any cause is about 50 to 100 % greater in depressed individuals, compared with nondepressed individuals (Coryell, 2018). Death due to suicide, homicide, and accidental death is also increased in patients with depression (Coryell, 2018). The most recent data from the CDC for West Virginia shows a steady increase in deaths associated with suicide, homicide, firearms, and overdoses during the years 2014 to 2017 (CDC, 2018). These statistics indicate a significant need for increased access to treatment for depression in West Virginia.

Center for Disease Control statistics demonstrate a correlation between depression and socioeconomic status. This data shows that 15.8% of adults from families living below the federal poverty level have depression, but the prevalence of depression decreases as family income levels increase (Brody, Pratt, & Hughes, 2018). In West Virginia, depression is significantly higher among people with less than a high school education and an annual household income of less than $15,000 (WV DHHR, 2018). In a sample of patients with a lower socioeconomic status at a free, rural, primary care clinic in West Virginia, 39% of patients had a diagnosis of depression (McCrone et al., 2007). Factors predictive of depression were younger age, lower education level, alcohol use, and unemployment (McCrone et al., 2007). Services for medication and psychiatry referral exist in the clinic of interest (L. Jones, personal

communication, December 15, 2019); however, low availability of resources such as funding and transportation make the likelihood of success for outpatient psychiatry referrals unreliable. Moreover, West Virginia is not prepared to meet the need for specialty treatment of mental illness. The state ranks 49th in mental health workforce availability with one provider for every 890 patients (Hellebuyck, Halpern, Nguyen, & Fritze, 2019). According to the CDC, 10.4% of all primary care visits were used to address depressive symptoms (2015). They also note that between the years 2011 and 2014, 12.7% of people aged 12 and older used antidepressant medication (Pratt, Brody, & Gu, 2017). Amidst the current treatment options in primary care, the rate and severity of depression appear to be increasing (WV DHHR, 2018).

Due to this shortage of mental health providers, psychosocial treatments for depression should be considered for integration into primary care services. Treatments must be timely and providers must be easily trained to enhance feasibility and engagement. While cognitive-behavioral therapy is the gold standard for depression, it requires a significant time commitment and must be implemented by providers with specialty training. Behavioral therapy is not a novel treatment, but interest in its usefulness and simplicity has been recently renewed. The behavioral approach was pioneered by Ferster (1973) and Lewinsohn (1974), both of whom recognized a link between avoidant behavior and depression. They recommended the use of behavioral activation strategies to increase positive reinforcement with the environment and subsequently improve mood (Ferster, 1973 & Lewinsohn, 1974). There are two current evidence-based methods for behavioral activation strategies: Behavioral Activation and the Brief Behavioral Activation Treatment for Depression (Turner & Leach, 2012). Behavioral activation strategies emphasize the importance of reinforcement as a means of treatment (Turner & Leach, 2012). Recent approaches to behavioral activation focus on decreasing depressed behavior by increasing

nondepressed behavior to reinforce the corresponding improvements in mood that these actions produce (Turner & Leach, 2012). During treatment with behavioral activation, the provider works with the patient to identify patterns of reinforcing behavior and the contingencies between those behaviors and their consequences (Turner & Leach, 2012). With activation techniques, an automatic consequence of increasing positively reinforcing behaviors results in the decrease of negatively reinforcing behaviors that perpetuate depressive symptoms (Turner & Leach, 2012). Behavioral activation itself involves collaboration between provider and patient to identify behaviors that elicit and reinforce depressive symptoms, and then choosing positive behaviors for activation (Turner & Leach, 2012). Due to its simple, straightforward technique and implementation without complex training, behavioral activation has the potential to be a valuable treatment for depression in primary care.

Problem Statement

Patients with a lower socioeconomic status tend to have an increased rate of depression (Brody, Pratt, & Hughes, 2018; WV DHHR, 2018). At a rural, predominantly free, primary care clinic in northern West Virginia, a large percentage of patients with these characteristics are diagnosed with depression (McCrone et al., 2007). Screening during treatment often reflects little to no improvement in depression scores (C. Wang, personal communication, December 15, 2019). Due to a lack of resources, referral to higher levels of specialty care is often impractical. Changes in clinician practice are being explored to address persistent depressive symptoms.

Purpose of Project

This pilot study implemented the Brief Behavioral Activation Treatment for Depression in consenting patients with depression. This intervention has been shown to decrease severity of

symptoms and improve patient behaviors associated with depression. Implementing behavioral activation as part of depression treatment in a low socioeconomic status population at a primary care clinic had the potential to improve depression outcomes.

Literature Review

An advanced literature search was conducted on December 14, 2019 using EbscoHost. Most notable databases included were Cochrane Library, CINAHL, Medline PubMed, and PsycINFO. Searches included various combinations of key words "behavioral activation," "Behavioral Activation for Treatment of Depression," "primary care," "primary care clinic," and "depression." Inclusion criteria were human subjects, English language, and publication between 2000 and 2019. Exclusion criteria included studies on forms of depression other than major depressive disorder, depression associated with other illnesses, and studies with an adolescent and/or child population. After duplicates were removed and inclusion and exclusion criteria were applied, nine articles were found suitable for review (see Appendix A for evidence table with more complete study details).

The first article chosen for review was a randomized control trial by Dimidjian et al. (2006) comparing behavioral activation, cognitive therapy, anti-depressant medication (ADM), and placebo control (PLA). The purpose of this study was to assess the effectiveness of behavioral activation (BA) as a treatment for major depression compared to cognitive therapy (CT) and ADM in the presence of a placebo control. Participants were randomly assigned to a treatment group using a computer-generated randomization list. Treatment groups consisted of BA, CT, ADM, or PLA. Severity of depression was used as a stratification of randomization. There was significant overall improvement across all conditions in the high-severity subgroup on the BDI ($p < 0.0001$) and the HRSD ($p < 0.0001$). Participants in the BA condition improved

significantly more per week than participants in the CT condition on the BDI ($p = 0.029$) and the HRSD ($p = 0.03$). Patients in the ADM condition also improved significantly more per week than participants in the CT condition on the BDI ($p = 0.007$) and the HRSD ($p = 0.022$). No significant differences were found comparing participants in the BA and ADM conditions on BDI or HRSD. There were significant overall improvements across all conditions in the low-severity subgroup on the BDI ($p < 0.0001$) and the HRSD ($p < 0.0001$), but there was no evidence of differences in improvement between treatments on the BDI or HRSD. For rates of response in the high-severity subgroup, data showed that significantly more participants in the BA condition met response criteria compared to those receiving CT ($p = 0.048$) or ADM ($p = 0.027$). For rates of remission in the high-severity subgroup, data showed significant differences between treatments on the HRSD ($p = 0.012$) and a significantly greater percentage of remission for participants in the BA condition compared with participants in the ADM condition ($p = 0.002$). From these findings, authors concluded that BA is similarly efficacious to ADM and more effective than CT. In more severely depressed patients, BA treatment resulted in a significantly larger number of participants reaching remission, and keeping a higher percentage of patients in treatment. These results highlight the importance of simple behavioral strategies in the treatment of depression.

The next article for review is a meta-analysis conducted by Cuijpers, van Straten, and Warmerdam (2007). The purpose of this meta-analysis was to examine the effects of activity scheduling (AS) on depression, the effects of activity scheduling compared to other treatments, and the long-term effects of activity scheduling. The literature included 16 studies with a total of 780 participants for this meta-analysis. Results showed that the mean effect size between activity scheduling and control condition was large, favoring activity scheduling. The pooled

effect size between activity scheduling and other psychological treatments was small, favoring activity scheduling but without a significant difference. The pooled effect size between activity scheduling and cognitive therapy was small, favoring activity scheduling. The pooled effect size between activity scheduling and a combination of CT and AS was small, favoring the combination of CT and AS. The pooled effect size between CT and a combination of CT and AS was small, favoring the combination of CT and AS. The effect size between activity scheduling and antidepressant medication was small, favoring activity scheduling. The effects of activity scheduling compared to a control condition at follow-up was large at two months and moderate at six months, suggesting some corroboration for the effectiveness of activity scheduling at long-term follow-up. The effect size between activity scheduling and CT at 1-2 months and 4-6 months was small, indicating nonsignificant differences between CT and activity scheduling at follow-up. From this data, authors concluded that activity scheduling is effective in the treatment of depression in adults. The overall effect size of activity scheduling is large, and similar to effect sizes found for other psychological treatments and antidepressants.

The next article for review is a meta-analysis by Ekers, Richards, and Gilbody (2007). The purpose of this study was to compare the effectiveness of behavioral therapy (BT) interventions to other psychosocial treatments and control conditions. Twenty studies were included with a total of 1,109 participants. Interventions in these studies included BT, treatment as usual (TAU) or control condition, CBT/CT, brief psychotherapy, or supportive counseling. Results for studies comparing BT and control conditions showed a significant difference between symptom level scores favoring BT over control ($p < 0.001$). There were also significantly larger rates of recovery in BT conditions than control ($p = 0.03$). Results for studies comparing BT and CBT/CT showed no difference in depression levels at post-treatment ($p = 0.46$). Results for

studies comparing BT and brief psychotherapy showed a significant difference between symptom level scores favoring BT over psychotherapy ($p = 0.01$). There were significantly higher rates of recovery observed in the BT condition than psychotherapy ($p = 0.01$). Results for studies comparing BT and supportive therapy showed a significant difference between conditions favoring BT ($p = 0.02$). From these results, authors conclude that BT is an effective treatment for depression and is superior to control conditions, supportive counseling, and brief psychotherapy. Authors also concluded that BT and CBT resulted in equivalent results with no statistically significant differences in post-treatment and follow-up symptom levels, recovery rates, or drop outs. These findings indicate that BT is as effective and acceptable as CBT/CT. The authors mention that data from this study did not support the assumption that BT may afford shorter training of less-qualified individuals to relieve the burden on therapist availiabity and demand; however, a meta-regression examining the impact of level of training for delivery of BT did not find that superior outcomes were associated with higher level of qualifications. Overall, authors conclude that BT is an effective treatment for depression with equal, or better, outcomes than treatments currently recommended.

The next article for review by Dobson et al. (2008) is a randomized control trial that builds on the findings of the RCT by Dimidjian et al. published in 2006. The purpose of this study is to determine the sustained effectiveness of prior CT, BA, or continued ADM in the presence of a placebo control, and whether the effects of CT or BA extended into the second year of follow-up. This study measured the rates of relapse or recurrence of depression in the participants of the Dimidjian et al. study. Assessments were conducted biweekly for the first two months of the first-year follow-up phase, and then at three, six, 12, 13, 14, 18, and 24 months. Data showed that relapse was highly likely at the beginning of the first follow-up year, especially for those

withdrawn onto placebo. Rates of relapse during the first follow-up year showed that active treatments (CT, BA, or ADM) resulted in significantly lower rates of relapse than withdrawal to placebo ($p = 0.04$). Taken individually, prior CT was significantly better than withdrawal to placebo ($p = 0.02$) and prior BA resulted in lower rates of relapse at a nonsignificant level ($p = 0.09$). Rates of relapse were not significantly different between continued ADM and withdrawal to placebo ($p = 0.33$). Prior exposure to CT reduced the risk for relapse by 64% compared to medication withdrawal, while continued ADM reduced the risk for relapse by about 33%, and prior exposure to BA reduced the risk for relapse by 51%. Participants in the continued ADM condition were withdrawn to placebo at the beginning of the second-year of follow-up. Rates of recurrence during the second-year of follow-up were lower in the prior CT and BA conditions than prior continued ADM but not with a significant trend ($p = 0.06$). Overall, prior CT and BA were significantly superior to continuation of ADM ($p = 0.04$) and medication withdrawal. Prior exposure to CT was significantly superior to continued ADM ($p = 0.02$) and prior exposure to BA showed a nonsignificant trend in the same direction ($p = 0.08$). From these results, authors concluded that prior exposure to either CT or BA resulted in an ongoing effect that was at least as effective as continued medication treatment, including the prevention of relapse and possibly recurrence.

The next article for review is a randomized control trial by Gawrysiak, Nicholas, and Hopko (2009). The purpose of this study was to assess the effectiveness of a single-session BA intervention based on the BATD protocol. Participants were recruited online from an introductory psychology course at a Southeastern university. Eligible participants who agreed to take part in the study were randomly assigned to the treatment or control group. The intervention protocol was adapted from the BATD treatment manual by Lejuez, Hopko, and Hopko in 2001.

The treatment was reduced from a nine-session protocol to one session, which resulted in decreased activity scheduling and exclusion of behavioral contracting strategies. Outcome measures were assessed using the BDI, to measure depression symptom severity, the EROS, to measure environmental reward and response-contingent positive reinforcement (RCPR) with higher scores suggesting increased environmental reward, the BAI, to measure symptoms of anxiety, and the MSPSS, to measure the social support from participants' family and friends, with higher scores indicating decreased social support. The authors also measured adherence to treatment using the weekly behavioral checkout sheets that participants returned to clinicians at the follow-up visit. Analysis showed a significant interaction between Group x Time on both the BDI ($p < 0.01$) and EROS ($p < 0.001$) and large effect sizes on the BDI (1.61) and EROS (1.14) demonstrated clinically significant improvements. There was a trend toward greater social support in the treatment group relative to control at post-treatment ($p = 0.08$) with a moderate effect size ($d = 0.70$). Reliable change indices were calculated for each measure and showed that 93% of individuals in the BATD group significantly improved on the BDI compared with 31% in the control group, that 64% of individuals in the BATD group significantly improved on the EROS compared to 0% of participants in the control group, and that 29% of individuals in the BATD group significantly improved on the MSPSS compared with 6% in the control group. Change-score data showed a strong relationship between increased environmental reward with decreased depression ($p < 0.01$), anxiety ($p < 0.05$), and increased social support ($p < 0.01$). Authors concluded that there was evidence that a brief BA intervention was effective in reducing depressive symptoms, increasing response-contingent positive reinforcement, and increasing social support. Data shows that a single-session of the BATD intervention resulted in significant reductions in depressive symptoms and increased environmental reward, suggesting that

shortened treatments may be effective and efficient in reducing depressive symptoms of moderately depressed students.

The next article for review is a meta-analysis by Mazzucchelli, Kane, and Rees (2009). The purpose of this meta-analysis was to identify all randomized control trials (RCT) of behavioral activation (BA), establish the effect of this method, and compare the effectiveness of its variants. Interventions included pleasant activities, self-control, contextual behavioral activation, and Behavioral Activation Treatment for Depression (BATD). Comparators included nontreatment, cognitive behavioral therapy/cognitive therapy (CBT/CT), and a blanket group of other treatments such as psychodynamic therapy or supportive counseling. After exclusion, 34 studies with a total of 2,055 participants were chosen. Results showed a large overall effect size in patients with elevated scores of depressive symptoms favoring BA over control conditions. This finding is similar to previous meta-analyses. Results also show a large, significant overall effect size favoring BA in patients meeting criteria for depressive disorder. However, comparisons between BA and CBT/CT showed no difference at post-test or follow-up, indicating that these treatments were equally effective in the short- and long-term. From the evidence, authors concluded that BA interventions are effective for the treatment of depression in adults, and the behavioral activation approach could be designated as a well-established treatment for depression.

The next article for review by Richards, et al. (2016) is a randomized, controlled, open-label, noninferiority trial. The purpose of this study was to assess clinical efficacy and cost-effectiveness of BA intervention compared to CBT in adults with depression. Patients were randomly assigned to treatment groups using computer-generated randomization and were stratified by depression severity according to PHQ-9 scores, antidepressant use/nonuse, and

recruitment site. The BA intervention was delivered to participants by junior Mental Health Workers (MHWs) and the CBT intervention was delivered by experienced psychologists. Follow-up assessments were conducted at six, 12, and 18 months. The primary outcome measure was self-reported depression severity using the PHQ-9 at 12 months. Secondary outcome measures included PHQ-9 scores at six and 18 months, diagnostic status, number of depression free days between follow-up points as determined by structured clinical interview, and health-related quality of life at six, 12, and 18 months using a 36-Item Short Form Survey. The modified intention-to-treat (mITT) population is comprised of all participants randomized with complete data and the per-protocol (PP) population was comprised of participants randomized with complete data who completed at least eight treatment sessions. Authors found no evidence of inferiority between these two populations. Authors also found no evidence of a significant between-group treatment interaction across the mITT or PP group for the primary outcome at 12 months as stratified by depression severity, antidepressant use, and recruitment site. Data showed that BA was not significantly different from CBT with relation to anxiety, depression status, depression-free days, or anxiety diagnoses for either the mITT or PP populations at 12 months. Data also showed that 61% to 70% of mITT and PP participants in both treatment groups met the criteria for recovery from depression with response to treatment at 12 months. Authors found no evidence of a difference between the BA and CBT groups with a nonsignificant time by treatment effect interaction for both mITT and PP populations. Authors did find a significant difference in average cost for intervention between the two groups in favor of BA ($p < 0.0001$), but no differences between categories of cost (hospital care, community health care, or medication) or in total cost. The mean health-related quality of life score was slightly higher for participants in the BA group at all follow-up points with resulting quality-adjusted life years

(QALY) also higher for participants in BA. Authors concluded that BA treatment for depression is non-inferior to CBT in terms of reduction in depressive symptoms and is more cost-effective than CBT treatment. Overall, authors believe that the results of this study challenge the dominance of CBT due to findings that suggest therapies that can reduce the need for costly professional training, reduce patient waiting times, and increase access to psychological therapies.

The next article for review is a benchmark-controlled trial (BCT) by Luoto et al. (2018). The purpose of this study is to examine the effects of BA in a group of depressed patients in their natural treatment setting and compare them to treatment as usual with regard to functional recovery, service use, dropout rate, and mortality. After matching, authors found that statistically significant differences between groups were baseline Global Assessment of Functioning (GAF) scores and frequency of personality disorders as a secondary diagnosis. BA treatments were implemented by trained personnel, including registered psychiatric nurses, psychiatric practical nurses, and psychologists. Follow-up appointments were scheduled with a clinical research nurse at six, 12, and 24 months after intervention. Patients in the control group received TAU according to the protocols of their specific interventions and follow-up data was gathered from patient case-notes at six, 12, and 24 months after treatment by estimating GAF scores and obtaining information about alcohol use. For treatment and control conditions, data concerning frequency of outpatient visits, number of hospital days, and dropout rates were obtained from patient records at six, 12, and 24 months following treatment. Results showed that mean scores for participants in the treatment group on MADRS at baseline was 23.2 points, 13.1 points at 6 months, 9.93 points at 12 months, and 8.31 points at 24 months. The improvement of MADRS scores for treatment group participants was statistically significant in every follow-up period.

Again, for treatment group participants there was no difference in GAF scores between baseline and follow-up at six months. However, at 12- and 24-months follow-up the estimated improvement in GAF scores was significantly better in the intervention group ($p = 0.036$). Data showed no between-group differences in number of outpatient visits during any follow-up period. The need for hospitalization was similar between treatment and control groups during all follow-up periods. There were no differences between treatment and control groups with regards to dropout rates in any follow-up period ($p = 0.79$, $p = 0.86$, $p = 0.51$, respectively). During all follow-up periods, there was no significant difference in mortality between groups ($p = 0.23$). Authors consider this study to be highly representative of the standard patient population in natural practice settings. Due to this capability for generalization, they believe conclusions are useful in real world practices. Data from this study shows that depressive symptoms of participants in the treatment group seemed to improve at follow-up periods, and the authors believe that BA may be a useful tool for treatment. Authors also noted that participants in the treatment group showed a greater improvement in functional ability than those in the control group and believe this is essential to patients' daily life. Rates of hospitalization and dropout were not significantly different between treatment and control groups. Overall, authors found an improvement in depressive symptoms and a trend toward functional recovery in patients treated with BA compared to TAU.

The last article for review by Funderburk, Pigeon, Shepardson, and Maisto (2019) was a non-randomized, non-controlled intervention trial. The purpose of this study was to address the need for a brief depression treatment suitable for primary care. Data showed a significant reduction in depressive symptoms based on PHQ-9 scores ($p = 0.001$). Data also revealed patient engagement of 36%, 1%, and 32% at appointments two, three, and four respectively based on

completed activity logs. A CSQ rating of 26.7 out of 35 indicated a high level of patient satisfaction, including satisfaction with the number, duration, and format of appointments. Authors concluded that results of the study supported the feasibility, acceptability, and efficacy of BA-PC. Patients reported high levels of satisfaction with the intervention, high likelihood of continuing activity scheduling after treatment, and perceived improvements in depressive symptoms which was supported by a decrease in PHQ-9 scores. Authors do admit that BA-PC may not entirely resolve depressive symptoms, and that a majority of patients did not report a clinically significant reduction in symptoms as defined by their criteria; however, a 68% treatment response showed a majority of patients reported symptom reduction. Summarily, this study showed BA-PC was well received by patients, could be delivered with high fidelity, and may result in an improvement of depressive symptoms.

Literature Synthesis

This review produced studies that were mostly located in the upper tiers of evidence-based literature with a majority being randomized control trials or meta-analyses. All articles were published in peer-reviewed journals lending credibility to study findings. They were also replicable and generalizable. While not all studies found behavioral activation to be superior to cognitive-behavioral therapy or cognitive therapy, all studies found BA to be equivalent to CBT/CT. All studies also found BA to be superior to placebo, control, antidepressant medication, and other forms of psychosocial intervention.

Theoretical Framework

This project was based on the Theory of Symptom Management. The Theory of Symptom Management was first introduced in 1994 by faculty at UCSF School of Nursing and revised in

2001. According to the theory, signs and symptoms of illness disrupt functioning and bring patients into the health care system, usually after self-care management strategies fail. This theory proposes a relationship between three concepts, provides a structure to understand the relationship between concepts, and provides a framework for considering interventions and outcomes (Smith & Liehr, 2008).

The Theory of Symptom Management is composed of three concepts. These concepts include symptom experience, symptom management strategies, and symptom status outcomes. Symptom experience is the "simultaneous perception, evaluation, and response to a change in usual feeling" (Smith & Liehr, 2008, p. 147). If a symptom occurs with enough frequency and severity to be perceived as distressing and interfering with life, the patient will seek help for more effective ways to minimize or stop the symptom. Symptom management strategies are "efforts to avert, delay, or minimize symptom experience" (Smith & Liehr, 2008, p. 147). Management strategies are effective by reducing frequency of symptom experience, minimizing severity of symptom experience, and relieving the distress associated with symptom experience. Symptom status outcomes are specific, measurable outcomes that are evaluated after the implementation of a strategy. Outcomes are obvious changes in symptom status where the symptom is less frequent, intense, or distressing (Smith & Liehr, 2008).

This theory is a framework for the study and development of symptom management strategies and apply to this project. Theoretically, patients with low socioeconomic status will experience depressed mood, anhedonia, and other symptoms of depression (Brody, Pratt, & Hughes, 2018). These symptoms cause the patient to suffer some type of distress. They then try to manage or eliminate this distress on their own but frequently visit their primary care provider when self-management is inadequate. Primary care providers then enact interventions that have

been shown to alleviate or eliminate symptom experience. In this situation, it seems that typical management strategies are not adequate to improve symptom experience. Successful interventions by the primary care provider should improve the distress of depression symptoms. Using this framework, new interventions can be implemented and evaluated for symptom management strategy.

Project

Intervention Plan

Treatment guidelines from the National Institute for Health and Care Excellence recognize that BA is an effective treatment for depression and should be considered as an intervention for patients with depressive symptomology ([NICE], 2009). This pilot study evaluated the effectiveness of the revised Behavioral Activation Treatment for Depression (Lejuez, Hopko, Acierno, Daughters, & Pagoto, 2011) combined with treatment as usual implemented in a predominantly free primary care clinic in northern West Virginia serving a population of individuals with a low socioeconomic status.

The intervention used in this pilot study was a shortened version of the revised Behavioral Activation Treatment for Depression (BATD-R) by Lejuez, Hopko, Acierno, Daughters, and Pagoto (2011). Direction was taken from the revised treatment manual. Specific revisions to the revised treatment include greater emphasis on treatment rationale, more clarity on life areas, values, and activities, simplified and fewer treatment forms, enhanced procedural details, and a revised daily monitoring form for low literacy (Lejuez, Hopko, Acierno, Daughters, & Pagoto, 2011). The original procedure in its extended format consists of 10 sessions. These meetings include five active treatment sessions and five sessions for review and post-treatment planning.

(Lejuez, Hopko, Acierno, Daughters, & Pagoto, 2011). Studies have shown the effectiveness of BA in as little as one to two sessions (Gawrysiak, Nicholas, & Hopko, 2009; Funderburk, Pigeon, Shepardson, & Maisto, 2019) which led this intervention to consist of the five active sessions from the BATD-R treatment manual according to instruction. Sessions took place during 60-minute appointments once weekly for five weeks. This intervention took place at a predominantly free primary care clinic in northern West Virginia where appointment length is usually 60 minutes.

Patients with a provider appointment set between April 26, 2020 and July 24, 2020 were screened for eligibility by the provider using the electronic medical record. Eligibility criteria for patient participation was a diagnosis of major depressive disorder or elevated depressive symptomology as evidenced by answering yes to either question on the PHQ-2. Exclusion criteria included participation in any other psychosocial treatment. Each patient who agreed to take part in the project was asked to sign an informed consent document.

During the first treatment session, each patient completed a Patient Health Questionnaire-9 (PHQ-9) and Behavioral Activation for Depression Scale (BADS) questionnaire. Throughout treatment, patients completed Daily Monitoring Forms (DMF), the Life Areas, Values, and Activities Form (LVAF), the Activity Selection and Ranking Form (ASRF), and Contract Forms (CF). The DMF is a table that allows the patient to track their daily activities (see Appendix B). The LVAF is a form the patient can use to identify their values in certain life areas and specific activities that support these values (see Appendix C). The ASRF is a form the patient uses to choose activities that support their values and then ranks these activities by difficulty (See Appendix D). The CF is a form that patients use to encourage involvement from family and

friends in their treatment (Appendix E). Each session in the revised manual was accompanied by a completion checklist for the provider.

Each session in the revised manual was accompanied by a completion checklist for the provider.

- Session one included a discussion of depression, introduction to treatment rationale and the daily monitoring form, and important points about the structure of treatment.
- Session two included reviewing and troubleshooting the DMF, reviewing the treatment rationale, and completing the LVAF.
- Session three included reviewing DMFs, reviewing the LVAF, and completing the ASRF.
- Session four included reviewing DMFs and starting daily monitoring with planning activities.
- Session five included reviewing DMFs with activity planning, completing the CFs, and completing a DMF for the week with activity planning.
- Subsequent sessions included the continuation of review and activity planning.

Data from the completed PHQ-9 and BADS questionnaires pre- and post-intervention were kept in a data table using random patient identification numbers, accompanied by a separate master list. (Refer to Appendix F for data table.) This data table and master list was kept in a locked box with a key kept by the project leader. All other documents completed by the patient were stored in their electronic medical record.

Participating patients were supposed to attend five 60-minute sessions over the course of five weeks. All visits were conducted according to the BATD-R manual. The provider completed

a checklist for each session to ensure adherence to treatment. It was intended for each patient to complete a post-treatment PHQ-9 and BADS during the last treatment session. Patients who failed to attend at least three out of five treatment sessions were considered lost to follow-up.

Feasibility Analysis

The goal of this pilot study was to implement a behavioral activation intervention in the primary care setting to improve the management of depression. It was implemented in a community funded clinic that services low income, uninsured and underinsured patients. This clinic is housed in the center of an urban area where most community resources reside for the impoverished population. These resources include multiple food pantries and soup kitchens, a drop-in center, homeless shelter, and department of human resources. The clinic itself serves as a meeting place for a large portion of this population since most of the homeless population can be found in this area. A significant number of patients who attend this clinic pass through multiple times a day. While the location of this clinic is ideal for its population, most specialty clinics can only be accessed using automotive transportation. Patients at this clinic rarely have funds for bus rides, car services, or personal vehicles. Most patients will usually request continued treatment at the primary care clinic.

In order to provide comprehensive behavioral activation treatment, one provider spent about 60 minutes per session for a varying number of sessions with five patients. The provider saw patients during usual clinic visits and evaluated PHQ-9 scores during the patient assessment so provider salary was by the clinic as an organizational contribution. The budget for administrative costs totaled approximately $3,000.

Educational materials were available for the provider. The provider had a copy of the BATD-R treatment manual. Session checklists from the treatment manual were used for each individual patient. The scripts for depression discussion and treatment rationale from the first session of the treatment manual were printed for each patient to use for discussion. Allowing for error in printing, the budget for educational materials totaled approximately $45 from the project leader's personal funds.

Project supplies consisted of necessary materials for project intervention. These supplies included two copies of the PHQ-9 and BADS, one daily monitoring form, one Life Areas, Values, and Activities form, one Activity Selection and Ranking form, and two contract forms per patient. These documents were kept in individually labeled file folders and all were kept in a locked box. Pens were available for use by participating patients. Estimations take into account printing errors. The budget for project supplies totaled approximately $75 from the project leader's personal funds.

The budget for this project totaled approximately $3,120. A majority of this budget was collected from an organizational contribution and the rest from the project leader's personal funds. This includes monetary provisions for administrative costs, educational materials, and project supplies. Implementation and organizational costs to the clinic were minimal since the project leader is employed by the clinic and the intervention will be reimbursable as a normal clinic visit. Contributions from the clinic were reflected as a portion of the current salary of the provider already in place for provision of care. Return on investment was minimal for the clinic due to the number of uninsured patients, but some income was generated by billing these visits for Medicaid patient participants. However, insurance status was not considered when recruiting participants for this project.

There were a few identifiable potential barriers to this project. The first potential barrier was the need for increased appointments with the patient. The author considered that increasing the number of follow-up appointments might put undue pressure on patients in this population and lead to failed outcomes. This is similar to the barrier of patient compliance. As with most populations, compliance with an aggressive treatment is likely to be low since it requires increased patient effort and participation. The last barrier is patient literacy, including health literacy. Patients in a low SES population tend to have low literacy levels, including health literacy. This potentially impacted patient understanding of the disease process and treatment rationale, and their ability to use written forms for monitoring. This last potential barrier was addressed in the revised manual of BATD.

Evidence of Site Support

Support for this project was provided by the administration and clinical staff at the clinic of interest. The clinic director gave written approval for the project to take place at the clinic. Refer to Appendix G for evidence of site support.

Timeline

Planning for this project started in August of 2019. The study was enrolled in IRB and approved in April of 2020. It was also enrolled in the Clinical Trials Center of Excellence and the protocol was approved in July of 2020. Implementation began near the end of April 2020 during the COVID-19 pandemic and was completed near the end of July 2020. Due to issues arising from the pandemic, enrollment in the project was extended by four weeks. The project was concluded in August 2020. Refer to Appendix H for evidence of timeline.

Measurable Project Objectives

The first aim of this project was to assess the feasibility of implementing this intervention in this clinic population with a large percentage of patients struggling with mental illness, who were potentially homeless, had a low income, and were either uninsured or underinsured. There were five feasibility measures as denoted by Bowen et al. (2009) that were used as measurable objectives for this aim: acceptability, demand, implementation, practicality, and limited-efficacy testing. Acceptability is the extent to which an intervention is judged as suitable to the patient and was measured by the intent to continue use of the intervention (Bowen et al., 2009). Demand is the extent to which an intervention is likely to be used and was measured by the expressed interest in the intervention and its actual use (Bowen et al., 2009). Implementation is the extent to which an intervention is successfully delivered to patients and was measured by the success or failure of its execution (Bowen et al., 2009). Practicality is the extent to which an intervention can be carried out using the existing resources and was measured by the ability of the participants to complete intervention activities (Bowen et al., 2009). Limited-efficacy testing is whether or not the intervention can be successful in the intended population and was measured by the presence of the intended effects on key variables (Bowen et al., 2009). Data gathered from implementation of the intervention and patient participation was used to assess these objectives.

The second aim of this project was to decrease overall PHQ-9 scores and increase overall BADS scores using a psychosocial intervention. There were two measurable objectives for this aim: patients with depression will show a decrease in overall PHQ-9 scores post-intervention, and patients with depression will show an increase in BADS scores post-intervention. Data for these objectives were measured using self-report information from the PHQ-9 questionnaire and BADS questionnaire. Overall PHQ-9 scores and BADS scores were assessed before intervention

for all patients, and after intervention for some patients. A paired *t*-test was used to determine if there was a statistical difference between the pre- and post-data.

The third aim of this project was to increase medication treatment adherence in conjunction with a psychosocial intervention. There was one measurable objective for this aim: patients with depression will show an increase in medication treatment adherence post-intervention. Data for this objective was supposed to be measured using self-report information and pill counts during the first follow-up visit.

Data Analysis

Once post-treatment questionnaires were completed, data analysis began. Overall PHQ-9 and BADS scores were calculated for pre- and post-intervention data. Paired *t*-tests were used to determine differences between them. Adherence to treatment by provider was measured using checklists from each session to determine percentage of completion.

Results

Participation Summary

Patients were eligible for participation if they had a diagnosis of major depressive disorder or elevated depressive symptomology as evidenced by answering yes to either question on the PHQ-2. Exclusion criteria included participation in any other psychosocial treatment and individuals less than 18 years of age. Five eligible patients agreed to participate in the study. Ten eligible patients declined to participate in the study. All other patients with a diagnosis of MDD or depressive symptomology were being seen by a counselor for other psychosocial treatment, making them ineligible for BATD-R.

Treatment Summary

Patient Number x Number of Sessions	Pt. 1	Pt. 2	Pt. 3	Pt. 4
Sn. 1	X	X	X	X
Sn. 2	X		X	
Sn. 3	X			
Sn. 4	X			
Sn. 5	X			

Four patients were enrolled in the project study, and one patient made a verbal commitment with a scheduled appointment to start the study. The first patient completed five sessions of BATD-R and elected to continue with several sessions. The second patient completed one session of BATD-R and then declined further participation. This patient has not been seen in the clinic since the first session of BATD-R and no reason was given for discontinuing treatment. The third patient completed two sessions of BATD-R, but the next session was cancelled by the clinic due to COVID. The subsequent follow-up appointment was cancelled by the patient. Upon resumption of treatment, this patient elected to postpone further follow-up due to a recent death in the family. The fourth patient completed one session of BATD-R, but the next session was cancelled by the clinic due to COVID. The patient then missed the next clinic appointment and was unable to be reached by phone later in the week after rescheduling. This patient has not been seen in the clinic since missing the follow-up appointment. The fifth patient did not attend the first session of BATD-R and has not been seen in the clinic since agreeing to participate in the study.

Demographic Data Summary

Demographic data was obtained for three of the five participants. The second patient did not provide demographic data and the fifth patient was not seen for the initial visit when demographic data collection takes place. Demographic data included age, gender, ethnicity, level of education, employment, housing, tobacco use, drug use, and alcohol use. Patients ranged in age from 27 to 61 years old. Two patients were female, two patients are male. Three patients considered themselves white. Level of education ranged from ninth grade to some college. Two patients were unemployed, one patient was employed. Three patients lived with another person. Two patients rented their residence and one patient owned their residence. Two patients lived in a house and one patient lived in an apartment. Two patients smoked cigarettes and one patient did not use tobacco. Two patients used illicit drugs and one patient did not. Two patients did not use alcohol and one patient did use alcohol.

Evaluation Results

Aim 1 – The first aim of this project was to assess the feasibility of implementing this intervention using five measurable objectives: acceptability, demand, implementation, practicality, and limited-efficacy testing. Acceptability is the extent to which an intervention is judged as suitable and was measured by the intent of participants to continue use of the intervention. Only one participating patient attended the five required sessions of BATD-R, while one patient completed two sessions, two patients completed one session, and one patient completed zero sessions. The patient who completed five sessions elected to continue with several sessions of BATD-R after the first five sessions. No other participants elected to continue treatment. This means that 20% of the participants intended to continue use of the intervention.

Demand is the extent to which an intervention is likely to be used, and was measured by the expressed interest in the intervention and its actual use. Fifteen patients were eligible for the project intervention, but only five elected to participate. Of those five patients, four attended at least one session. This indicates that 33% of eligible patients expressed interest in the intervention, and 80% of those who expressed interest completed at least one session. However, only one patient completed all treatment sessions out of the five patients who expressed interest. This means that only 20% of the patients who expressed interest completed the intervention.

Implementation is the extent to which an intervention is successfully delivered to patients and is measured by the success or failure of its execution. Session checklists provided in the BATD-R manual were kept for each patient during sessions. Each checklist showed that all elements of each session were completed with the patient. This indicates that 100% of the required components for treatment were delivered to patients during treatment sessions.

Practicality is the extent to which an intervention can be carried out using the existing resources and is measured by the ability of the participants to complete intervention activities. Participants were expected to complete one Daily Monitoring Form every day, one Life Areas, Values, and Activities Form, one Activity Selection and Ranking Form, and at least one Contract Form. Patients were provided with one copy of each form, and expected to secure their own further copies of daily monitoring forms. Revised versions of the DMF for low literacy participants were offered to each patient, but all patients declined. Out of the four patients who attended the first session, three were capable of completing the DMF. This indicates that 75% of participating patients could use the DMF. One patient had difficulty with the DMF because she was illiterate. This indicates that 25% of participating patients could not use the DMF. Out of the two patients who attended the second session, one had no difficulty using the LAVF while the

second exhibited some confusion at using the form. This indicates that 50% of the participating patients could use the LAVF form while 50% could not use the form. Of the one patient who completed the other three sessions, there was no difficulty in using the ASRF or the CFs. This indicates that 100% of the participating patients could use the ASRF and the CFs.

Limited-efficacy testing refers to whether or not the intervention can be successful in the intended population and is measured by the presence of the intended effects on key variables. Results for the effects of the intervention on key variables is limited due to high attrition rates and missing data. From the complete pre- and post-data of one patient who completed the intervention, there was a decrease in the PHQ-9 score and increase in the BADS score. From the partial pre- and post-data of one patient who completed two sessions of the intervention, there was an increase in the PHQ-9 score. There were no comparable data sets for the remaining three participants. This indicates that the intervention had the intended effect on key variables in 25% of the participating patients who completed at least one session.

Aim 2 – The second aim of this project was to decrease depression scores and increase daily functioning scores as measured by the PHQ-9 and BADS questionnaires. Due to attrition, only one patient completed pre- and post-data for both PHQ-9 and BADS questionnaires, while one patient completed pre- and post-data for the PHQ-9 questionnaire. The average pre-intervention PHQ-9 score for all participating patients was 15.25, while the average pre-intervention BADS score for the same patients was 19. The average post-intervention PHQ-9 score for two of the four participating patients was 12. Missing data did not allow for an average of the post-intervention BADS score of participating patients. In the patient that completed the intervention, the pre-intervention PHQ-9 score was 19 and the post-intervention score was 9. In this same patient, the pre-intervention BADS score was 17 and the post-intervention score was 35. In the

patient that completed two sessions of the intervention, the pre-intervention PHQ-9 score was 14 and the post-intervention score was 15. A paired *t*-test was used to compare pre- and post-intervention scores for two participating patients on the PHQ-9. There was no significant difference between the pre- and post-intervention PHQ-9 scores with $p = 0.563$. However, PHQ-9 and BADS scores showed clinically significant improvements in depressive symptoms and daily functioning in the patient who completed the intervention. The PHQ-9 scores showed no clinically significant differences in the patient who completed two sessions of the intervention.

Aim 3 – The third aim of this project was to increase medication treatment adherence in conjunction with a psychosocial intervention. This data was unable to be collected and the provider was unable to determine if there was a statistical difference between the pre- and post-data.

Discussion and Recommendations

The theoretical framework for this project was based on The Theory of Symptom Management. This theory provides a framework for exploring the relationship between interventions and outcomes, as outlined by the structure of the association between symptom experience, symptom management strategies, and symptom status outcomes (Smith & Liehr, 2008). According to The Theory of Symptom Management, patients experience distressing symptoms and seek symptom management strategies that are followed by an evaluation of symptom status outcomes where the symptom should be less frequent, intense, or distressing (Smith & Liehr, 2008). The development, implementation, and evaluation of interventions is supported by this framework due to its association between the concepts of symptoms, as interventions are intended to improve symptoms. It is an especially apt framework for this

project as it focuses on the evaluation of symptom outcomes after implementing an intervention for symptom relief.

The feasibility evaluation of this project showed mixed results. Data suggests that the intervention was not acceptable to the patient population, nor in high demand. Only a small number of eligible patients were interested in the intervention, and an even smaller amount actually participated in the sessions. Of those interested, only one patient completed the intervention. While data for implementation suggests the intervention can be successfully delivered, practicality seemed to be an issue. Completing the included intervention activity forms was essential to success of the treatment and patients seemed to struggle with understanding the required forms. Limited efficacy data also suggested that this intervention may not produce the expected improvement in symptoms of depression or daily functioning in this population.

Producing adequate data for analysis of significance was difficult due to patient attrition. Available data suggested there was no statistically significant difference in depressive symptoms or daily functioning between pre- and post-intervention. Yet data did indicate a potential clinical significance. The patient who completed two sessions of the intervention did not show a clinically significant difference in depressive symptoms; however, data from the patient that completed the intervention in its entirety suggested a clinically significant improvement in depressive symptoms and daily functioning after the intervention.

While there were some promising findings, it is recommended that this project be phased out and terminated at this facility. The feasibility of this project in a population of low income, uninsured and underinsured patients is questionable. Patient interest in this behavioral treatment was limited and data showed no statistically significant improvement in depression or functioning. Also, this project did not produce enough data to determine clinical significance.

Patient interest in mental health treatment may have been eclipsed by the COVID-19 pandemic at this time. It could also account for the attrition rate of participating patients. When speaking of attrition, it is important to note that patients with mental illness are more likely to miss follow-up appointments, and those that miss follow-up appointments have a greater chance of losing contact with the clinic (DeFife, Conklin, Smith, & Poole, 2010; Killaspy, Banerjee, King, & Lloyd, 2000). These factors may have had an impact on the implementation of this project. It may be possible to implement this project in a behavioral health center or integrated care center, or a different primary care clinic with a population of patients that are more likely to attend frequent clinic visits. Patients attending a behavioral health center may be more likely to continue follow-up while patients at an integrated care center would receive comprehensive care that may encourage continued clinic contact. Research literature shows that behavioral activation is an effective treatment for depression but this project demonstrates that it may not be appropriate in a low-income primary care clinic, especially during the COVID-19 pandemic.

The implementation of this project has positively impacted the care I provide for patients with mental illness. The research undertaken during the planning phase of this project has allowed me to more thoroughly understand the assessment and diagnosis of depression. It has also allowed me greater knowledge of the available treatments for depression and their relative effectiveness. The therapeutic relationships I built during the implementation phase of this project has led me to greater empathy and compassion for patients with mental illness. Greater understanding of the patients' experience has improved my communication and allowed for enhanced patient motivation. While analyzing feasibility and outcomes of this project during the resolution phase I was able to better understand what patients desire from their treatment plan and the capabilities of this population to engage in their treatment. The outcomes of this project

suggest that patients in this population desire more of a therapeutic approach and are not highly engaged in treatment activities. This realization led me to increase my use of motivational interviewing techniques leading patients to higher levels of engagement and change. These modifications in my practice are directly related to the knowledge I gained from this project.

DNP Essentials

This project meets the first essential of "scientific underpinnings for practice" by using nursing theory to evaluate practice approaches in a novel environment. Using the Theory of Symptom Management, this psychosocial intervention was further developed and its effectiveness validated in the primary care setting.

This project meets the second essential of "organizational and systems leadership for quality improvement and systems thinking" by developing and evaluating care for certain vulnerable populations. This psychosocial intervention has been revised for patients with mental illness who belong to a low socioeconomic status or lack adequate healthcare coverage.

This project meets the third essential of "clinical scholarship and analytical methods for evidence-based practice" by critically appraising existing literature and using synthesized information to design and implement methodologies that promote effective patient care. The literature review of this psychosocial intervention preceded the revision of intervention guidelines which were implemented to promote patient wellness.

This project meets the fourth essential of "information systems/technology and patient care technology for the improvement and transformation of health care" by demonstrating the ability to develop and execute an evaluation plan using data extraction from practice information systems. Completed health questionnaires used to evaluate the effect of this intervention became part of the patient's medical chart, and data from these documents were used to evaluate intervention efficacy.

This project meets the fifth essential of "health care policy for advocacy in health care" by developing and implementing institutional health care policy. This psychosocial intervention has

the potential to become part of treatment guidelines for this population and become institutional policy at primary health care clinics. The findings from this project can help to improve the implementation of this intervention.

This project meets the sixth essential of "interprofessional collaboration for improving patient and population health outcomes" by using effective communication and collaboration in the development and implementation of practice guidelines. The project leader improved the use communication skills to educate clinic providers and clinic staff on the use of this intervention and encouraged collaborative teamwork to make it successful.

This project meets the seventh essential of "clinical prevention and population health for improving the nation's health" by including education as part of the intervention to promote healthy behaviors that have an effect on population health. Using a psychosocial intervention, this project promoted healthy behaviors in depressed patients that have an effect on this particular population.

This project meets the eighth essential of "advanced nursing practice" by demonstrating advanced levels of clinical judgment, systems thinking, and accountability in designing, delivering, and evaluating evidence-based care to improve patient outcomes by designing, implementing, and evaluating a psychosocial intervention in primary care. The project leader revised the design, implemented, and evaluated an evidence-based psychosocial intervention that can improve patient outcomes.

Nurses are known to value the holistic well-being of their patients. They establish therapeutic relationships that promote a mutual trust and respect between patient and nurse. This relationship often allows the patient to become an equal partner in their care and encourages

participation in treatment. This is a unique attribute of the advanced practice nurse. The intervention utilized in this study was a direct reflection of that partnership between provider and patient and appropriate for use by advanced practice nurses.

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Appendix A

Author/Date	Purpose/Variables	Design/Method	Sample/Setting	Data Analysis	Findings	Appraisal
Cuijpers, P., van Straten, A., & Warmerdam, L. (2007).	To examine the effects of activity scheduling on depression, the relative effects of activity scheduling compared to other treatments, and the long-term effects.	Meta-analysis. Comprehensive literature search (1966-2005) through PubMed, PsycINFO, Embase, and Cochrane Central Register of Controlled Trials. Collected primary studies from 22 meta-analysis of psychological treatment of depression. Examined abstracts of 777 studies and selected ones which focused on activity scheduling. Included studies in which effects of activity scheduling on adults with a depressive disorder or an elevated level of symptomology were compared to a control condition or another psychological or pharmacological treatment in a randomized control trial. No language restrictions. Considered intervention activity scheduling when registration of pleasant activities and the increase of positive interactions between a person and his/her environment were the core elements of the treatment. Methodological quality of the studies was assessed using 4 criteria by Higgins & Green (2005). Calculated effect sizes using only instruments from studies that explicitly measure	16 studies with a total of 780 subjects met inclusion criteria and were included.	Mean effect size between activity scheduling and control condition indicating a large effect favoring activity scheduling. The pooled effect size between activity scheduling and other psychological treatments was 0.13 indicating a small effect favoring activity scheduling without significant difference. The pooled effect size between activity scheduling and cognitive therapy was 0.02 indicating a small effect favoring activity scheduling. The pooled effect size between activity scheduling and CT+AS was -0.01 indicating a small effect favoring CT+AS. The pooled effect size between CT and a combination of CT+AS was -0.16 indicating a small effect favoring CT+AS. The effect size between activity scheduling and antidepressant medication was 0.26 indicating a small effect in favor of activity scheduling. The effects of activity scheduling compared to a control condition at follow-up ranged from 0.88 at two months to 0.54 at six months indicating a large and moderate	Authors found clear indications that activity scheduling is effective in the treatment of depression in adults. The overall effect size of 0.87 is large and comparable to effect sizes found for other psychological treatments and treatments with antidepressants. Several studies compared AS to CT and indicated that AS and CT are equally effective including at follow-up periods up to 6 months.	

		depression. To calculate pooled mean effect sizes, the computer program Comprehensive Meta-analysis was developed. Cochran's heterogeneity statistic.		effect respectively suggesting some support for the effectiveness of activity scheduling in the long-term. The pooled effect size was 0.18 indicating a small but nonsignificant improvement from post-test to follow-up. The change between post-test and 4-6 months follow-up resulted in a pooled effect size of 0.03 indicating a small effect. The change from post-test to 7-12 months follow-up was 0.53, indicating a moderate effect. Effects of activity scheduling at follow-up could be compared to the effects of CT at 1-2 months with a pooled effect size of 0.02. Effects of activity scheduling at follow-up compared to CT at follow-up at 4-6 months had a pooled effect size of -0.13 indicating nonsignificant differences between CT and activity scheduling at follow-up. CT vs. activity scheduling at one year follow-up d = 0.30.		
Dimidjian, S., Hollon, S.D., Dobson, K.S., Schmaling, K.B., Kohlenberg, R.J., Addis, M.E., Gallop, R., McGlinchey, J.B., Markley, D.K., Gollan, J.K., Atkins, D.C., Dunner, D.L., & Jacobson, N.S. (2006).	To test the relative efficacy of BA in acute treatment of major depression by comparing it both with CT alone and with ADM in the context of a placebo-controlled trial; to test whether either psychosocial treatment was a viable alternative to ADM in the treatment of moderate to severe depression. Treatments included	Randomized control trial. Eligible participants were randomly assigned to a treatment using a computer-generated randomization list consisting of BA, CT, ADM, or PLA. Depression severity was used as stratification variable during randomization. Scores on pretreatment HRSD	Participants consisted of 241 individuals between ages of 18 and 60 years who met criteria for major depression according to the DSM-IV and scored 20 or higher on BDI-II and 14 of greater on the 17-item Hamilton Rating Scale for Depression. Recruitment	In high-severity subgroup, significant overall improvement by time for all groups on the BDI and on evaluator rated HRSD, $p < 0.0001$. Participants in BA improved significantly more per treatment than in CT on both BDI ($p=0.029$), and the HRSD ($p=0.038$). Participants in ADM improved significantly more per treatment than in CT	Results of this study indicate that BA is comparable in efficacy to ADM and more efficacious than CT among more severely depressed patients. Results also provide further confirmation of	

	BA, CT, antidepressant medication (ADM) or pill placebo (PLA). Measures included diagnosis, depression severity, adherence and competence, response and remission.	were used to form two groups of high or low severity. Participants were assigned to therapists within modality based on therapist availability. BA condition received max of 24, 50-min sessions over 16 weeks, generally held twice weekly for first 8 weeks and once weekly for second 8 weeks. CT condition followed the same protocol regarding frequency, schedule, and allotment of treatment sessions as the BA condition. Both ADM and PLA conditions were administered in a triple-blind manner during first 8 weeks then the blind was broken and PLA participants were offered their choice of treatment at study expense. ADM was administered in a single-blind manner for the final 8 weeks. Participants were seen weekly for the first 4 weeks and biweekly thereafter through week 16 (although PLA were terminated at week 8). First pharmacotherapy session was 30-45 min and subsequent sessions lasted up to 30 minutes. Diagnosis was measured using a standardized clinical interview, depression severity was measured using a modified 17-item version of the HRSD and the	occurred between 1998 and 2001 from media advertisements, referral from local agencies, and word of mouth or referral. Participants were excluded if they had a dx of psychosis or bipolar dx, organic brain syndrome, mental retardation, substantial and imminent suicide risk, current or primary diagnosis of alcohol or durg abuse panic disorder, obsessive-compulsive disorder, psychogenic pain disorder, anorexia, or bulimia, presence of antisocial, borderline, or schizotypal personality disorder, or nonresponse to adequate trial of CT or paroxetine within the previous year.	on both BDI (p=0.007) and HRSD (p-0.022). No sig diff in the rate of improvements between BA and ADM on BDI or HRSD (p=0.80, p=0.96). Using the BDI and HRSD, ADM and BA lie within the margin of noninferiority, with a probability larger than 99.1%. In low-severity subgroup, there was significant overall improvement by time for all groups on the BDI (p<0.0001) and the HRSD (p<0.0001). No evidence of differential improvement over time by treatment on BDI or HRSD. Among more severely depressed patients, overall combined rates of response and remission based on the BDI were 48% in CT, 76% in BA, and 49% in ADM. On the basis of HRSD overall rates were 56% in CT, 60% in BA, and 40% in ADM. Significantly greater percentage of BA participants met BDI response criteria compared with receiving CT (p=0.048). Rates of remission high-severity subgroup based on BDI were 40% in CT, 52% in BA, and 42% in ADM. On basis of HRSD, overall rates of remission were 36% in CT, 56% in BA, and 23% in ADM. No significant differences between treatments on BDI. Results indicated significant differences between treatments on the HRSD (p=0.012) with a significantly greater percentage of BA participants reaching	importance of initial severity in analysis of treatment outcome because differential treatment effects were observed only among those patients who were more severely depressed. For more severely depressed patients BA and ADM were comparable on self-report and clinical ratings and BA brought a significantly greater percentage of participants to remission and retained a great percentage of participants in in treatment. Results underscore the value of sustained use of simple behavioral strategies, such as goal setting, self-monitoring, activity-scheduling, problem-solving, and graded task assignment in the treatment of depression. BA did particularly well in this study. It was at least as efficacious as ADM, even among more	

		BDI-II. HRSD was administered at pre-, mid-, and post-treatment and as required. HRSD was administered at each session during the first 8 weeks for ADM and PLA participants. BDI-II was administered at pre-, mid-, and post-treatment and as required. Treatment adherence was measured using a version of the Collaborative Study Psychotherapy Rating Scale modified to accommodate inclusion of BA, and Cognitive Therapy Scale for competence of CT delivery. Response is significant symptomatic improvement and remission is improvement to the point of being asymptomatic within normal range. On HRSD and BDI, response was defined as at least 50% reduction from baseline and remission was defined as scores less than or equal to 7 on HRSD and 10 on the BDI.		remission as compared with ADM. Among less severely depressed, overall rates of response based on BDI were 65% in CT, 50% in BA, and 56% in ADM. On basis of HRSD overall response rates were 60% in CT, 39% in BA, and 47% in ADM. No significant differences between treatments on BDI. Rates of remission based on BDI were 55% in CT, 44% in BA, and 42% in ADM. On basis of HRSD overall rates of remission were 50% in CT, 39% in BA, and 33% in ADM. No significant difference between treatments on BDI or HRSD.	severely depressed participants, and retained a greater proportion of patients long enough for them to benefit from treatment. BA was also more efficacious than CT among more severely depressed participants. Interest in BA was based in part on the notion that it would be a more exportable treatment that is easier to implement and train than CT or other more complex interventions.	
Dobson, K.S., Hollon, S.D., Dimidjian, S., Schmaling, K.B., Kohlenberg, R.J., Gallop, R.J., Rizvi, S.L., Gollan, J.K., Dunner, D.L., & Jacobson, N.S. (2008).	To determine enduring effects of prior exposure to BA, prior exposure to CT, and continued treatment with ADM in the context of a placebo-controlled trial. To determine whether effects of prior psychosocial treatments extended beyond the prevention of relapse to the prevention of recurrence during a 2nd year follow-up after acute	Participants were recruited from the original Dimidjian (2006) study and consisted of 106 patients who had been assigned to active treatment but no longer met the diagnostic criteria for MDD at the end of the acute phase of treatment. Data were available to estimate risk to the point of relapse or recurrence for 92 of the 106 patients	Participants were followed to the point of relapse or recurrence for up to 2 years following response to acute treatment. 1st year compared prior CT, BA, and ADM. Participants who had received ADM were randomized by previous assignment and continued active medication or	Relapse: Especially likely to occur at the start of the 1st follow-up year, especially for medication responders withdrawn onto placebo (cPLA). Rates of relapse during 1st follow-up year were 39% for prior CT, 50% for prior BA, 53% for cADM, and 59% for cPLA. Active treatments were superior to withdrawal onto placebo ($p = 0.04$). Separately prior CT	Overall pattern of results observed indicates that prior treatment with either CT or BA has an enduring effect that is at least as efficacious as continuing patients on medication and that held for the prevention of	

	treatment. Outcome measures included relapse and recurrence. Relapse is defined as the return of the treated episode of depression, and in this study as either HRSD scores of 14 or greater or PSRs of 5 or greater for 2 successive weeks during the 1st year of follow-up. Recurrence is defined as the onset of a new episode of depression, and in this study as either HRSD scores of 14 or greater or PSRs of 5 or greater for 2 successive weeks during the 2nd year of follow-up.	who entered follow-up period.	withdrawn onto PLA at the beginning of the 1st year follow-up according to predetermined 2-week taper schedule. Patients in cADM and cPLA continued to see pharmacotherapists biweekly for the first 2 months and monthly thereafter the rest of the 1st year follow-up. At the end of the 1st year, pharmacotherapists discontinued cADM patients' medication using the same taper as used for cPLA participants. Patients in both cADM and cPLA were seen biweekly during the taper period and then assessed during the 2nd follow-up year. Participants completed assessment instruments biweekly for the first 2 months of the 1st year follow-u phase, at months 3, 6, and 12, 13, 14, 18, and 24. Ad hoc assessments were conducted whenever a new episode of depression was suspected, on the basis of elevated HRSD scores, or patient or pharmacotherapist report.	was significantly superior to cPLA (p = 0.02) and prior BA demonstrated a nonsignificant trend (p = 0.09), but cADM was not significantly different from cPLA (p = 0.33). Prior exposure to CT reduced risk for relapse by 64% relative to medication withdrawal. cADM reduced risk for relapse by about 33%. Prior exposure to BA was associated with a reduction in risk for relapse by 51%, and is comparable to the effect typically observed for continuation of medication. Recurrence: Patients in cADM were withdrawn from medication at the beginning of 2nd year follow-up. Rates of recurrence during 2nd follow-up year were 24% for prior CT, 26% for prior BA, and 52% for prior cADM. Effect of prior CT and BA showed a nonsignificant trend compared to the effect of prior cADM (p = 0.06). Prior exposure to either CT or BA reduced the risk of recurrence by about 63% relative to medication withdrawal. The overall effect for treatment was significant (p = 0.04) with both prior CT and BA being superior to continuation of medication followed by medication withdrawal. Prior CT was significantly superior to cADM (p = 0.02) whereas prior BA exhibited a nonsignificant trend in the same direction	relapse and possibly recurrence. Evidence for enduring effect was clearer for prior CT than BA but differences between two psychosocial interventions never approached statistical significance and were relatively small in magnitude. The indication that BA may also have an enduring effect comparable to CT, but not for patients successfully treated with medication, is particularly noteworthy. Because behavioral ideas are used repeatedly during acute treatment, they are highly salient and thus recall is increased at times of potential relapse. BA is implemented in a manner that is intended to both teach coping skills and reduce further risk. Although antidepressant medications generally are safe and efficacious, there is little	

				(p = 0.08). Prior exposure to BA was associated with a reduction in risk of 47% relative to cADM and prior CT was associated with a reduction in risk of 58%. CT and BA were directly compared with maximal power provided by full 2-year comparison and did not significantly differ (p = 0.57). CT was associated with a reduction in risk of 27% relative to prior BA. Over one third of patients initially assigned to BA/CT showed sustained outcomes across the course of acute treatment and the 1st follow-up year, compared to less than a quarter of the patients initially assigned to pharmacotherapy. Comparisons revealed that only prior CT had a greater sustained response than both cADM. Across the 2nd follow-up year, rats of sustained recovery were 35% for prior CT and 28% for prior BA. This indicates that brief treatment with either CT or BA is as efficacious over the long run as keeping people on ADM.	evidence that they alter the course of the disorder. Because depression is often chronic or recurrent, any treatment with an enduring effect is particularly worthwhile. Even though little evidence was found of a preventive effect for the continuation of medication, it was striking how rapidly even recovered patients experienced a recurrence when medication was withdrawn. Overall, current results suggest that BA may have an enduring effect similar to that produced by CT. Prior CT was superior to medication withdrawal, and prior BA did almost as well (at a nonsignificant level). Each was at least as effective as continued medication.	
Ekers, D., Richards, D., & Gilbody, S. (2007).	To compare behavioural interventions for depression to other psychological approaches and controls.	Meta-analysis. Database search from inception to January 2006 (including Medline, EMBASE, PsycINFO, Cochrane Library DARE, CINAHL, AMED, and British	20 studies, 1109 subjects BT vs waiting list/control/placebo: 12 studies, 459 participants from adult community	BT vs. Waiting list/placebo/control: Large effect with a pooled SMD demonstrating highly significant difference in symptom level scores favoring BT (p < 0.001). Average	Data showed clear evidence that BT is an effective treatment for depression and provides superior	

		Nursing Index) incorporating randomized controlled trial filters. Additional studies found using reference lists. All available RCT in any language were included, participants aged > or = 16 years, treated in community or inpatient settings with primary dx of depression. Excluded studies including patients with psychosis or bipolar, substance misuse, cognitive impairment. Interventions included BT (based upon rescheduling of activities to reintroduce positive reinforcement and reduce avoidance), treatment as usual/control (range of standard treatments such as waiting list, usual GP treatment, inert control conditions), CBT/CT (directly identified, questioned, and modified cognitive responses to situations and their emotional consequences), brief psychotherapy (developing insight and subsequent character development through interpersonal relationships), supportive counseling (focus upon therapist's use of core relationship conditions to develop self-awareness by the patient). Outcome measures were depression	sources. Control interventions were delayed treatment, treatment as usual, relaxation. Depression severity was assessed using BDI, HAMD, or both. BT vs. CT/CBT: 12 studies with a total of 476 patients from adult community sources. Interventions ranged from supported bibliotherapy, brief therapy with six 40-min sessions to 24 50-min sessions. Depression symptom level was assessed using either BDI self-report or HAMD assessor rating scale. BT vs. psychotherapy: 3 studies with a total of 166 adult patients from outpatient community sources, 2 using older adults. Psychodynamic model from 10-20 sessions. Assessed depression symptom level using BDI or BDI & HAMD. BT vs. supportive therapy: 2 studies with 45 subjects comprised of university students and inpatients. Interventions ranged from six 20-min sessions to eight 50-min sessions. Measured	dropout rate of 19.17% with no differences between intervention and control (p = 0.86). Greater rates of recovery in BT (p = 0.03). BT vs. CT/CBT: Depression level post treatment showed no difference in effect between BT and CBT/CT was identified with a pooled SMD (p = 0.46). Depression level at follow-up showed no difference in effect with a pooled SMD (p = 0.28). No difference in rates of dropout (p = 0.67). Pooled recovery rate of 55% with no difference between treatment approaches (p = 0.72). BT vs. psychotherapy: Depression symptom post-treatment showed a positive effect of BT with a large pooled SMD (p = 0.01). Depression symptom level at follow-up showed a positive effect of BT with a medium SMD (p = 0.02). Average dropout rate of 14.45% but no difference between studies observed (p = 0.11). Greater rates of recovery were observed in BT compared to psychotherapy (p = 0.01). BT vs. supportive therapy: Depression symptom level at post-treatment showed a positive effect of BT against supportive therapy with large SMD (p = 0.02).	outcomes to control, supportive counseling, and brief psychotherapy. BT and CBT provided equivalent results with no statistically significant differences in post-treatment and follow-up symptom levels, recovery rates, or drop outs. In addition to similar levels of mean symptom improvement, we observed no difference in recovery or dropout, indicating that BT is as effective and acceptable as CBT/CT. Such findings partially endorse the BT parsimony hypothesis advanced by Jacobson and colleagues. BT may lend itself to shorter training of less-qualified individuals thus assisting the current scarcity of therapist availability and overwhelming demand. We found no direct evidence in this review to support such an assumption, but when we	

		symptom-level self-rated (BDI) or clinician rated (HAMD), and recovery and dropout rates were entered as dichotomous data. Quality assessment, data extraction and synthesis (data from each trial at post-treatment and follow-up of 6 months or nearest available data synthesized using Cochrane collaboration RevMan program), data pooling, exploration of heterogeneity.	depression symptom levels by self-report BDI and HAMD.		examined the impact on level of training of those who had delivered BT in meta-regression, we did not find that superior outcomes were associated with 'higher' level qualifications. In summary, BT for depression is an effective intervention that has equal, if not better, outcomes than alternative and currently recommende d therapies.	
Funderburk, J.S., Pigeon, W.R., Shepardson, R.L., & Maisto, S.A. (2019).	To address the need for brief depression treatments in primary care. Intervention variable was brief behavioral activation intervention, measured variables were patient engagement, satisfaction, acceptability, treatment response, and fidelity.	Pre-test/post-test design without randomization or control. Open trial. Eligible patients completed a baseline assessment and follow-up assessment at 12 weeks. Participants received two appointments of BA-PC with two boosters spaced 2-3 weeks apart. Content was modified from the original 10-appointment brief BA treatment manual for depression. Booster appts did not introduce new content, but reviewed material from previous appts, problem solved barriers, and set new goals.	Participants were recruited from two VHA primary care clinics. Patients who screened positive on PHQ-2 in the previous month were identified by EMR and contacted via mail and telephone. These patients were eligible if they met criteria including: depressive symptoms of at least moderate severity termed PHQ-9 > or = 10, no current mania or psychosis, no current dx of bipolar, no psychotherapy for depressive symptoms within the past month, no antidepressants or on stable dose > 3 months, no engagement in	Patient engagement: Completed activity logs for 2, 3, & 4 were 36%, 1%, and 32% resp. Patients tried to enact 1 of the goals set at prev appt based on discuss with mean rating of 3.41, 3.01, and 3.80. Patient satisfaction/acceptab ility: mean CSQ rating was 26.7 out of 35 indicating high level of overall satisfaction with number & duration of appts, and in-person format. Seven patients cited ease of access as main reason for satisfaction. Reported high likelihood of cont to engage in activities after study to improve mood. Treatment response: within subjects t-test revealed significant reduction in depressive symptoms	Results of this study support feasibility, acceptability, and utility of BA-PC. Patients reported high levels of satisfaction with intervention overall, and with specific BA-PC characteristic s such as length, duration, and format. Patients endorsed high likelihood of continued engagement, indicating high levels of acceptance. Patients perceived improvement in depressive symptoms, corroborated	

			psychotherapy or stable psychotherapy for anxiety or SUD > 3 months, no current inpatient hospitalization. Total of 222 veterans screened, 87 eligible to participate, 36 agreed to participation, 32 fully eligible to continue, 22 completed entire study. No significant differences in age, race, baseline level of depressive symptoms.	p = 0.001. No statistically sig difference in report of morbid/suicidal ideation, 6/11 reported no thoughts of suicide in the past 2 weeks or thoughts less often. Fidelity: Appt 1 & 2 = all core content delivered to 95% of pts. 26/32 participants completed appts 1 & 2, and a majority of patients (n=20) also completed two boosters. Average 12 days between appts, appts 1&2 lasted average of 34- and 29-minutes resp. Booster appts lasted 28 minutes on average.	by decreased PHQ-9 scores, and patients across all levels of depressive severity saw improvements. BA-PC may not completely resolve depressive symptoms and a majority of patients did not report a clinically significant decrease in symptoms, 68% treatment response rates suggest a majority of patients in the study reported symptom reduction such that 9-pts demonstrated clinically significant improvement and 6 pts reported an improvement consistent with a treatment response. This study showed that a brief behavioral activation intervention was well-received by pts in primary care and that it could be delivered with high fidelity, and suggested that BA-PC may result in an improvement in depressive symptoms.	

Gawrysiak, M., Nicholas, C., Hopko, D.R. (2009).	To use an RCT to assess the efficacy of single-session individualized BA intervention based on the more comprehensive BATD protocol.	RCT. Preliminary power analysis conducted. Potential participants were recruited through an online study description and websites highlighting counseling services for students in need. Participants completed a BDI and demographic questionnaire for eligibility. Participants 18 years and older who scored 14 or higher on the BDI and were not presently undergoing pharmacological or psychological treatment for depression were included, excluded if involved with psychotherapy within the last 2 years, active suicidal intent, current psychosis, or bipolar disorder. Treatment protocol represented major modification of original BATD intervention in that it was reduced to a one-session treatment which resulted in five fewer weeks of activity scheduling making it a nonprogressive approach to activating, in which a greater number of behaviors were targeted for activation immediately, and omission of behavioral contracting strategies to decrease rewards for depressive behaviors. 90-min individual intervention session by 1 of 2	Introductory psychology students recruited from a public Southeastern university who received credit for participation. All but 2 eligible students agreed to participate in the study, and all who participated completed the study. 30 students overall, BATD treatment n=14 and no treatment n=16. Recruitment processes involving self-referral and highlighting aspirations for depression treatment as a desired participant attribute	Adherence to treatment was measured with the weekly behavioral checkout that was returned to clinician at post-treatment. All outcome variables were examined with a 2x2 repeated measures analysis of variance. Clinical significance of pre-post differences was assessed using Cohen's *d* statistic where effect sizes of 0.2, 0.5, and 0.8 are considered small, medium, and large. Significant Group x Time interactions were evident on both the BDI ($p < 0.01$) and EROS ($p < 0.001$). Large effect sizes on both the BDI (1.61) and EROS (1.14) revealed clinically significant improvements. BAI scores did not yield a significant Group x Time interaction ($p = 0.25$, $d = 0.36$). A trend toward increased social support in BATD group relative to control condition at post treatment ($p = 0.08$) that was characterized by a moderate effect size ($d = 0.70$). Reliable change indices (RCI) calculated for each measure indicated that on the BDI 93% of individuals in the BATD group significantly improved, compared with only 31% in the control group. On the EROS, 64% of individuals in the BATD group improved, where 0% of participants in the control group demonstrated clinically significant change. MSPSS data revealed that 29% of individuals in the	There was strong support for the efficacy of 2 weeks of BA in attenuating symptoms of depression and increasing response-contingent positive reinforcement. There was also encouraging, but not statistically significant, evidence that BATD might show some utility in creating a stronger and more rewarding social support system. Change-score data supported a strong relationship between decreased depression and increased RCPR, and the good compliance rate in this study increases confidence that improvement was associated with BA and increased environmental reward. An important consideration of current findings is that pre-post treatment changes resulted from a single 90-minute session of	

		male doctoral students in clinical psych. Eligible students were contacted by telephone and asked to participate. Within 3 days of completing the online depression measure, participants were randomly assigned to either the BATD treatment or no-treatment control group. Each participant then had their initial session in which they were exposed to either 90 min of BATD or a general discussion about research requirements and their participation in the study. Follow-up sessions were scheduled 2 weeks later, during which time outcome measures were administered, behavioral checkout form returned, and participants debriefed. Measures included BDI (assesses the severity of depression symptoms), EROS (assesses environmental reward and RCPR, or response contingent positive reinforcement with higher scores suggesting increased environmental reward), BAI (measures cognitive and somatic symptoms of anxiety), and MSPSS (assesses the adequacy of social support from family and significant others		BATD group improved significantly compared with only 6% in the control group. RCI analyses of the BAI yielded comparable findings across groups with 36% of individuals in the BATD group and 31% of participants in the control group demonstrated clinically significant change. Calculated pre-post treatment change scores to determine the degree to which efforts to structure guided activities and engender environmental reward were effective e in reducing depressive affect. Although causality cannot be inferred, change-score data indicate strong relationships, whereby the magnitude of increased environmental reward was strongly correlated with decreased depression ($p < 0.01$) and anxiety ($p < 0.05$), as well as increased social support ($p < 0.01$)	BATD. Although follow-up data were not obtained, results suggest that brief BA may effectively minimize depressive symptoms in the short term. In summary, the single-session BATD intervention resulted in significant reductions in depressive symptoms and increased environment al reward. These findings suggest that abbreviated treatments may have some utility toward effectively and efficiently reducing depressive symptoms in moderately depressed university students.	

		where higher scores suggest decreased social support).				
Luoto, K.E., Lindholm, L.H., Paavonen, V., Koivukangas, A., Lassila, A., Leinonen, E., & Kampman, O. (2018).	To explore the benefits of BA in a heterogeneous group of depressed patients in a naturalistic setting and to compare BA with treatment as usual in terms of functional recovery, service use, dropout, and mortality.	BCT (observational intervention study) used to assess the impact of clinical intervention in routine settings, in contrast to RCT which usually assess the specific intervention in ideal settings. To study the impact of the selected intervention in real life setting of psychiatric secondary services. Comparisons were made with a control group representing as similar patient population as possible treated with TAU methods in the same area. Consecutive patients who were referred to adult psych services because of depressive symptoms, anxiety, self-destructiveness, insomnia, or substance related problems were screened using the BDI. Those with BDI score equal to or greater than 17 at the screening were included in the intervention group (n = 242). The control group (n = 205) was recruited from a hospital district database of psychiatric outpatient clinics not participating in the ODS study from October 2009-December 2012 and from the same psychiatric hospital ward before the start of the ODS. Patients with a new referral to adult	Recruited from five psychiatric outpatient clinics and one psychiatric hospital ward (Finland) during October 2009-2013.	Improvement of depressive symptoms in intervention patients was analyzed using MADRS scores. Mean score for intervention patients at baseline was 23.2 pts, 13.1 at 6 months, 9.93 at 12 months, and 8.31 at 24 months. Change in MADRS was statistically significant in every follow-up period. At 12- and 24-months follow-up the estimated improvement in GAF score was significantly better in the intervention group ($p = 0.036$). At six months a similar difference was not found. Sensitivity analysis was performed by excluding patients with personality disorder as secondary clinical diagnosis (n = 44). Results were similar with the total sample analysis with GAF estimates between intervention and control groups at 6 months ($p = 0.057$), 12 months ($p = 0.006$), and 24 months ($p = 0.002$). There was no between-group differences in number of outpatient visits during any follow-up period. Need for hospitalization was measured in every follow-up period and number of hospitalized patients was similar in the intervention and control groups during all periods. Among patients who were hospitalized at	Since only patients with psychotic or organic pathologies were excluded this study was heterogeneous with various comorbidities and therefore representative of the usual patient population in everyday practice. Depressive symptoms among the intervention group patients seemed to alleviate compared to baseline during the 2 years of follow-up. Results suggest that BA is a useful tool although strong conclusions can't be drawn about the benefits compared to TAU. Intervention patients showed a greater improvement in functional ability than control. Functional recovery has a considerable effect on daily life and is particularly relevant from patients' point of view. Intervention	

		psych services were selected in chronological order if their BDI score was greater than or equal to 17 at admission and the AUDIT score was available. Control group patients were matched with the intervention group patients by clustering according to the current psych hospital contact (inpatient/outpatient), AUDIT score in 4 categories, and BDI score in 2 categories. Characteristics were mainly similar between the groups, only the baseline GAF score (p = 0.035) and the frequencies of personality disorders as a secondary psychiatric diagnosis (p = 0.037) were statistically significant different between the groups. For the intervention group, baseline assessment was based on the Cube Method (integrated assessment method for comorbid psychiatric and substance use disorders in clinical settings) and used to decide which patients would be additionally treated with motivational interviews. Depressive symptoms were rated using the Montgomery-Asberg Depression Rating Scale (MADRS) and level of functioning was assessed using the Global Assessment		baseline, number of patients hospitalized during follow-up periods was also similar between groups. There were no between group differences in the number of patients who dropped out in any period (p = 0.79, p = 0.86, p = 0.51, respectively). There were 4 deaths in the intervention group and 7 deaths in the control group (p = 0.23).	did not change the need for inpatient treatment in the intervention group. Dropout rates indicated that adherence to treatment was similar in both groups. In this study, mental health workers with various backgrounds received short-term training in BA and delivered the intervention successfully. This indicates that this intervention could enhance the treatment of depression in the existing psychiatric health care system. Depressive symptoms improved and there was a trend towards better functional recovery among patients treated with BA compared to TAU.	

		of Functioning scale (GAF). For control group, all data were collected retrospectively from hospital district patient registers. In intervention group, BA and antidepressant medication were used for 239 of the patients and motivational interviews were used during the first appointment in patients having alcohol use problems (baseline AUDIT greater than or equal to 11). Minimum duration of BA was set at 4 appointments. Median number of sessions was 6.5. Decision to start medication was based on clinical evaluation at baseline and 6 weeks by the treating physician. If baseline MADRS score was 20 or more, medication was started and the dose was elevated if necessary or changed from SSRI to SNRI as needed. All patients in the control group were treated in public psychiatric secondary care in the same organization as the intervention group over the same time period. Control patients received TAU according to protocols of respective treatment unit and followed-up according to the case notes at 6, 12, and 24 months by estimating GAF scores and obtaining				

		information about possible alcohol use. For both groups, info about frequency of visits, number of hospital days, and dropouts were collected from patient registers at 6, 12, and 24 months follow-up.				
Mazzucchelli, T., Kane, R., & Rees, C. (2009).	To identify all randomized controlled studies of BA, to determine the effect of this approach, and to examine the differential effectiveness of variants. Interventions included pleasant activities, self-control, contextual behavioral activation, and BATD.	Meta-analysis. Searched PsycINFO and MEDLINE databases for articles published between January 1970 and September 2008 that included the terms activity scheduling, behavioral/behavioural activation, pleasant events, or pleasant activities. Studies were included if effects of BA on typically developing adults with depressive disorder or elevated levels of depressive symptomology were compared with a control condition or another psychological or active pharmacological treatment in a RCT.		BA vs. Control conditions – The effect of BA against control was large with a pooled effect size of 0.78 demonstrating a highly significant difference favoring BA. BA vs. Other conditions – Negligible pooled effect size of -0.01 between treatments was nonsignificant. Subgroup analyses indicated that the pleasant activities variant of BA yielded a small effect in favor of CBT/CT, self-control variant yielded negligible effect in favor of CBT/CT, and contextual variant yielded small effect in favor of BA. Effect sizes of different variants of BA were not found to differ significantly from each other. Effects at follow-up – BA vs. control at 1-3 month follow-up was large with pooled effect of 0.78, demonstrating highly significant difference favoring BA; at 7-12 month follow-up effect was small at 0.08 and nonsignificant in favor of BA. BA vs. CBT/CT at 1-3, 4-6, 7-12, and 13-24 months effect size was small and nonsignificant with an effect size ranging from -0.10 in favor of CBT/CT to 0.05 in favor of BA. BA vs.	Results indicate that BA is effective in the treatment of depression. Individuals with elevated scores on self-report depression measures, overall effect size in favor of BA over control is large and comparable with the effect size found by previous meta-analyses. Patients meeting diagnostic criteria for MDD, overall effect size remained large and significant. Comparisons of BA with CT of CBT indicated that these treatments were equally effective. There is evidence that BA has equivalent effects to CBT/CT for up to 24 months. Although more recent variants of BA, such as contextual	

				psychotherapy or other treatments at 1-3 months showed pooled effect size of 0.23 indicating a small, nonsignificant difference in favor of BA; BA vs. psychotherapy only at 4-6 and 7-12 months effect sizes were large but nonsignificant in favor of BA.	BA, showed greater effects than earlier variants, all produced effects of similar magnitude and differences between them were not significant. Focused evidence review indicated that contextual BA has the strongest evidence base and satisfies the APA's Division 12 Task Force's probably efficacious designation for the treatment of MDD, and could be argued that the BA approach in general satisfies the well-established designation.	
Richards, D.A., Ekers, D., McMillan, D., Taylor, R.S., Byford, S., Warren, F.C., Barrett, B., Farrand, P.A., Gilbody, S., Kuyken, W., O'Mahen, H., Watkins, E.R., Wright, K.A., Hollon, S.D., Reed, N., Rhodes, S., Fletcher, E., & Finning, K. (2016).	To establish clinical efficacy and cost-effectiveness of BA compared with CBT for adults with depression.	Randomized, controlled, open-label, non-inferiority trial. Patients were recruited using patient records of general practices and psychological therapy services for patients with depression, identified by depression codes. Practices/services contacted patients to seek permission for researcher contact, research team interviewed those that responded and assessed for	Recruited from primary care and psychological therapy services in Devon, Durham, and Leeds. Eligible participants were adults 18 years and older who met diagnostic criteria for MDD according to standard clinical interview. Exclusion criteria were patients receiving psychological therapy, alcohol or drug dependence, acute suicidal or	Between Sept 26, 2012 and April 3, 2014 authors recruited 440 participants, randomizing 221 participants to the BA group and 219 to the CBT group. Participants received an average of 11.5 BA sessions or 12.5 CBT sessions. Found no evidence of inferiority between mITT or PP populations. Found no evidence of a significant between-group treatment interaction across the mITT or PP group with primary	BA for depression is not inferior to CBT in terms of reduction of depressive symptoms and is more cost-effective than is CBT. Economic analyses were driven by lower costs of MHWs who delivered BA compared with more experienced psychological therapists	

		eligibility. Patients were randomly assigned to groups using computer-generated allocation, and stratified by severity according to PHQ-9 scores, antidepressant use/nonuse, and recruitment site. A computer-based system allocated the first 20 patients to each group on a truly random basis, in subsequent participants allocation was minimized to maximize the likelihood of balance in stratification variables across the two groups. Authors developed clinical protocols in line with published treatment protocols, advice from international collaborators, and NICE recommendations for duration and frequency of BA/CBT. MHWs and therapists delivered a maximum of 20 sessions over 16 weeks, with the option of 4 additional booster sessions if desired by patients. All core components of BA & CBT were delivered by week 8. Sessions were in person, lasting 60 minutes. Specific BA techniques included identification of depressed behaviors, analysis of triggers and consequences of depressed behaviors, monitoring of activities, development of	attempted suicide in the past 2 months, cognitively impaired, or had bipolar disorder or psychosis. Recruited from patient records of general practices and psychological therapy services for patients with depression.	outcome at 12 months as stratified by depression severity, antidepressant use, and recruitment site. Found that BA was not different from CBT in anxiety, depression status, depression-free days, or anxiety diagnoses for either the mITT or PP populations at 12 months. Between 61% and 70% of mITT and PP participants in both groups met criteria for recovery from depression in response to treatment at 12 months with no difference in the proportions of patients in each group who recovered or responded. Found no evidence of a difference between the CBT and BA groups over the period of the trial as indicated by a nonsignificant time by treatment effect interaction for both mITT and PP populations. Found a significant difference in mean interventions costs between the two groups in favor of BA ($p < 0.0001$), but no differences in categories of cost or in total cost. Mean health state utility scores according to EuroQoL-5D-3L were slightly higher in the BA group than CBT across the entire follow-up period with resultant QALY (Quality Adjusted Life-Years) also higher for BA, but the QALY difference was not significant. Costs were lower and QALY outcomes better in the BA group than in the CBT group. BA was significantly less	who routinely deliver CBT. Results substantiate the hypothesis that BA is as effective as CBT and its simplicity renders BA suitable for delivery for junior MHWs with no professional training in psychological therapies. Findings could have substantial implications for scalability of psychological treatment for depression internationall y given the greater availability and ease with which a BA workforce could be trained than could a CBT workforce. Results of this study challenge the dominance of CBT. Findings suggest that health services globally could reduce the need for costly professional training and infrastructure , reduce waiting times, and increase access to psychological therapies.	

		alternative goal-oriented behaviors, scheduling of activities, and development of alternative behavioral responses to rumination. Follow-up assessments were done at 6, 12, and 18 months. Quality and adherence to treatment was assessed. Primary outcome was self-reported depression severity using the PHQ-9 at 12 months. Secondary outcomes were PHQ-9 scores at 6 and 18 months, DSM-IV diagnostic status, number of depression free days between follow-ups (structured clinical interview) and health-related quality of life at 6, 12, and 18 months (36-item Short Form Survey).		costly than CBT, so BA continues to have a higher probability of being cost-effective than does CBT at the NICE threshold.		

Appendix B

Form 1. Daily Monitoring

Time	Activity	Enjoyment (0-10)	Importance (0-10)
5-6 am			
6-7 am			
7-8 am			
8-9 am			
9-10 am			
10-11 am			
11-12 am			
12-1 pm			
1-2 pm			
2-3 pm			
3-4 pm			
4-5 pm			
5-6 pm			
6-7 pm			
7-8 pm			
8-9 pm			
9-10 pm			
10-11 pm			
11-12 pm			
12-1 am			
1-2 am			
2 → 5 am			

Appendix C

Form 2. Life Areas, Values, and Activities Inventory

Life Area (1/5): Relationships

Value:	Enjoyment (0-10)	Importance (0-10)
• Activity 1:		
• Activity 2:		
• Activity 3:		
• Activity 4:		
• Activity 5:		

Value:	Enjoyment (0-10)	Importance (0-10)
• Activity 1:		
• Activity 2:		
• Activity 3:		
• Activity 4:		
• Activity 5:		

Value:	Enjoyment (0-10)	Importance (0-10)
• Activity 1:		
• Activity 2:		
• Activity 3:		
• Activity 4:		
• Activity 5:		

Appendix D

Form 3. Activity Selection and Ranking

Instructions: List your desired 15 activities and rate the difficulty of each from 1 = least difficult to 15 = most difficult.

ACTIVITY	RANK

Appendix E

Form 4. Contracts

What is an activity you could use help to complete?

_____

Name one person who can help you with this activity:

_____

What are the ways this person can help you with this activity:

1. _____
_

2. _____
_

3. _____
_

Name one person who can help you with this activity:

_____

What are the ways this person can help you with this activity:

1. _____
_

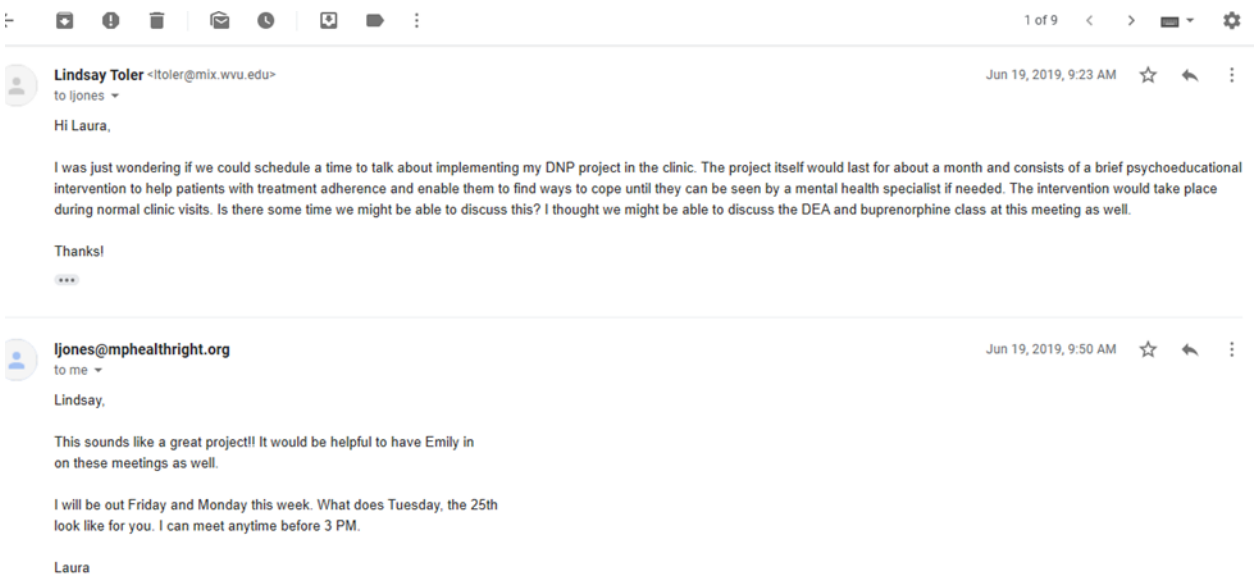
2. _____
_

3.

Appendix F

Patient	PHQ-9 Pre	BADS Pre	PHQ-9 Post	BADS Post	Change in PHQ-9	Change in BADS
1	19	17	9	35	-10	+18
2	12	21	N/A	N/A	N/A	N/A
3	14	14	15	N/A	+1	N/A
4	16	24	N/A	N/A	N/A	N/A
Average	15.25	19	12	N/A		

Appendix G



1 of 9

Lindsay Toler <ltoler@mix.wvu.edu> Jun 19, 2019, 9:23 AM
to ljones

Hi Laura,

I was just wondering if we could schedule a time to talk about implementing my DNP project in the clinic. The project itself would last for about a month and consists of a brief psychoeducational intervention to help patients with treatment adherence and enable them to find ways to cope until they can be seen by a mental health specialist if needed. The intervention would take place during normal clinic visits. Is there some time we might be able to discuss this? I thought we might be able to discuss the DEA and buprenorphine class at this meeting as well.

Thanks!

ljones@mphealthright.org Jun 19, 2019, 9:50 AM
to me

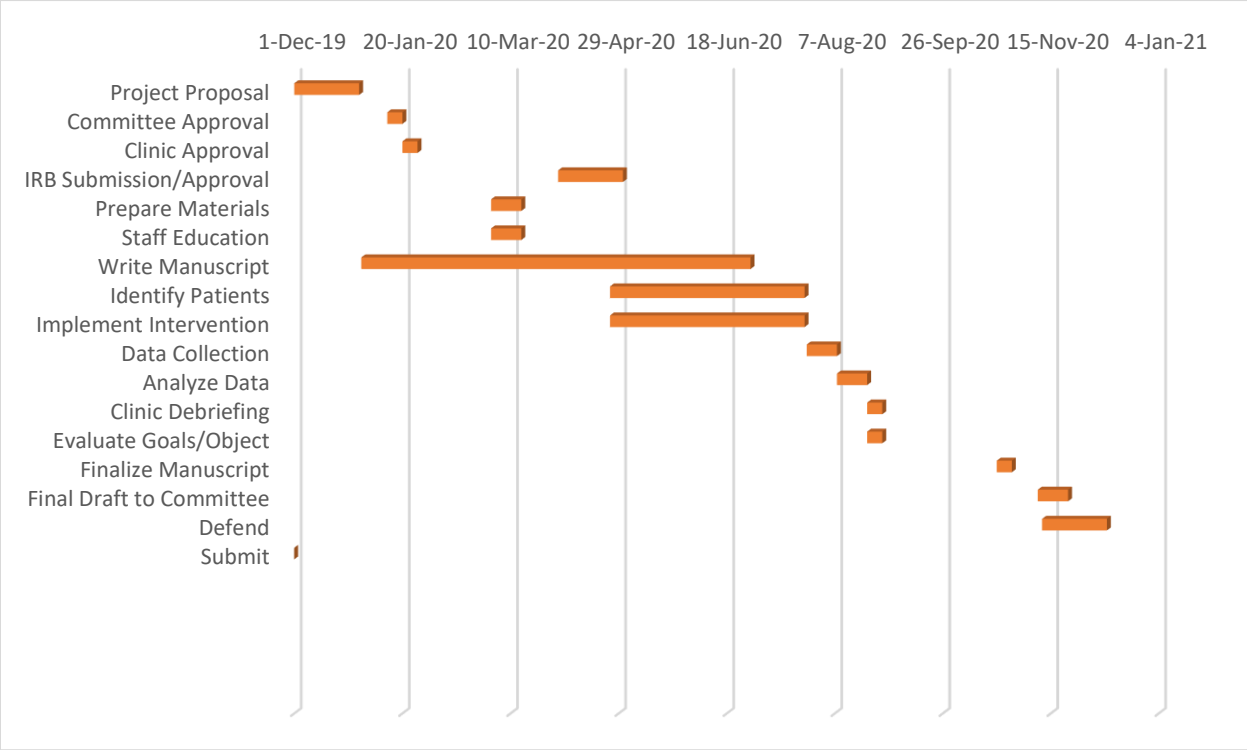
Lindsay,

This sounds like a great project!! It would be helpful to have Emily in on these meetings as well.

I will be out Friday and Monday this week. What does Tuesday, the 25th look like for you. I can meet anytime before 3 PM.

Laura

Appendix H


1-Dec-19
20-Jan-20
10-Mar-20
29-Apr-20
18-Jun-20
7-Aug-20
26-Sep-20
15-Nov-20
4-Jan-21
Project Proposal
Committee Approval
Clinic Approval
IRB Submission/Approval
Prepare Materials
Staff Education
Write Manuscript
Identify Patients
Implement Intervention
Data Collection
Analyze Data
Clinic Debriefing
Evaluate Goals/Object
Finalize Manuscript
Final Draft to Committee
Defend
Submit