

Cognitive Behavioral Therapy to Treat Symptoms of Depression in Veterans

Kyle Reiter

University of Minnesota, School of Nursing

### Abstract

The prevalence of mental health disorders and suicide have grown exponentially over the past few decades, so it is essential for practitioners to know which treatments work best for those suffering from common mental illnesses such as major depression. This is particularly true with respect to veterans who have an increased risk for developing mental health disorders. This paper examined seven studies which sought to determine the efficacy of cognitive behavioral therapy (CBT) to treat symptoms of depression (i.e. suicidal behavior, hopelessness, aggression, isolation, etc.) in veteran populations. Participants varied in age, primary diagnosis, gender, and comorbidity, but all had diagnosed major depressive disorder. Modalities of CBT also varied in each study. Some studies offered therapy through innovative mobile phone applications while others offered in-person therapy sessions. Three of the six studies provided quantitative data in support of the treatment, whereas the other four offered qualitative, subjective data. Findings of all studies point to the efficacy of CBT in treating symptoms of major depression.

*Keywords:* Cognitive behavioral therapy (CBT), mental health, major depression, veteran.

## **Introduction**

There was a suicide every thirteen seconds in 2013, and in that same year, suicide was the tenth leading cause of death in America (Center for Disease Control and Prevention [CDC], 2015). Suicide and the mental health disorders commonly diagnosed in those who commit suicide (i.e. major depressive disorder and bipolar disorder) destroy families across the globe, debilitating the lives of millions in all age groups, ethnicities, and socioeconomic statuses. Bipolar disorder affects 2.6% of the United States (U.S.) adult population, 82.9% of whom are categorized as “severe” (Nation Institute of Mental Health [NIMH], 2005). As one of the most common mental disorders in the U.S., major depressive disorder affects 15.7 million U.S adults and 2.8 million adolescents every year, 6.7% and 11.4% of the respective populations (NIMH, 2005). The mental health disorder statistics for the nation’s veterans are prevalent as well.

## **Background**

It is estimated that twelve-thousand veterans with the above mentioned disorders attempt suicide every year (ClinicalTrials.gov, 2016). A study in which 5,000 soldiers were surveyed about suicidal thoughts, plans, and attempts, found that 13.9% of soldiers have considered suicide in the past, 5.3% had suicide plans, and 2.4% attempted to kill themselves (Nock, et. al. 2014).

Given the prevalence of mental health disorders and depressive symptoms in veteran populations, it is imperative research be conducted to find effective treatments for disorders like major depression. That is the purpose of this paper, to explore literature which address the question; Does cognitive and behavioral therapy (CBT) reduce symptoms of major depression disorder in U.S. veterans?

Living a healthy, productive life is not easy with disorders such as major depressive disorder and bipolar disorder, in fact, having these disorders takes away years of a life; mental health disorders can be crippling. The World Health Organization estimates 4.44% of all disability-adjusted life years (DALYs), or years of life lost to an illness, are attributed to either major depressive or bipolar disorder (2010). With an ever-growing prevalence of mental health disorders in the U.S., particularly in veteran populations, it will be important to understand how to treat the underlying issues associated with them, like the symptoms of major depression. Adequately treating these disorders may help lower suicide rates, prolong the lives of millions, and save families from grieving the unnecessary loss of loved ones.

Media conveys mental health illnesses in many confusing ways, especially when considering individuals who struggle with suicidal or homicidal ideation. Often mainstream media presents biased, exaggerated, and often frightening data (Stuart, 2006). Therefore, knowing more about common, effective treatments for disorders like depression will empower individuals to make well informed decisions with regard to mental illness and its treatment. The closure of this knowledge gap will also help medical workers provide safe, patient-centered and evidence-based care to those suffering from mental health disorders.

### **Methods**

Search databases Ovid MEDLINE, PsychINFO, PubMed, and University of Minnesota Full Text Journals were used to find whether cognitive behavioral therapy effectively reduces symptoms related to major depressive disorder in U.S. veterans. The first keyword used was “veteran” which queued 12,285 articles. The second keyword used was “major depression” which resulted in 33,596 results. Thirdly, “suicide” was searched, with 51,161 results. The phrase “Cognitive Behavioral Therapy” resulted in zero studies, so the keywords “cognitive

therapy” and “behavioral therapy” were searched and resulted in 18,616 and 57,257 articles, respectively. All keywords were added together to refine the search, resulting in seven articles. The results were then refined to ensure relevancy. Only original articles were used and those written in languages other than English were omitted, along with articles published before 2001. This resulted in seven studies which were selected for this review.

### **Results**

An interesting characteristic about cognitive behavioral therapy is that it is a relatively generic term. Multiple forms of therapy with differing methods and platforms can all be considered cognitive based therapy (Mayo Clinic, 2016). This section of the paper presents the evidence found through search and review of literature related to the results of cognitive behavioral therapy in reducing symptoms of major depressive disorder in veterans. The seven studies mentioned in this section include cohort studies and case control trials. Five of the studies were released within the last five years, while one is fifteen years old. All were written in English and are in favor—although to varying degrees—of cognitive based therapy for the treatment of major depression in veterans. The form by which their results are presented separates the studies into two categories: (a) quantitative and (b) qualitative. The first three studies, one by Trockel, Bradley, and Manber (2015), another by Karlin et al. (2015), and a study by Serpa, Taylor, and Tillisch (2014) present data using quantitative statistics. Whereas, the following four studies, the first by Matarazzo et al. (2014), the second by Koons et al. (2001), third by Bush et al. (2015), and fourth by Loboprabhu, Molinari, and Asghar-Ali (2015) rely heavily on qualitative, subjective information from the test participants. These characteristics must be reviewed when determining significance from data found in the studies.

## **Quantitative Results**

It is common for depressed individuals to suffer from stress, anxiety, insomnia, and suicidal ideation (Aina & Susman, 2006). The three studies by Trockel, et al (2015), Karlin, et al (2015), and Serpa et al. (2014) recruited large numbers of depressed veterans who suffered from one or more of these comorbidities and tested how cognitive behavioral therapy helped treat both depression and comorbidities. Trockel, et al (2015) used cognitive behavioral therapy with 405 veterans with diagnosed insomnia to address how CBT in combination with restorative sleep affected suicidal behavior and depressive symptoms. The study found significant decrease in suicidal behavior in trial participants (Trockel, et. al., 2015) Likewise, Karlin, et al (2015) enrolled 764 veterans between age 18 and 64 to study whether CBT is more effective in older or younger populations with depression. Patient outcomes were quantified by the Beck Depression Inventory–II and World Health Organization Quality of Life-BREF and addressed commodities such as hopelessness, anxiety and suicidal ideation (Karlin, et. al., 2015). It is noteworthy that less than 70% of the respective age groups finished the therapy which was found to decrease symptoms of depression. The older group went from a depression rating of 27.0 to 16.2 whereas the younger group decreased from 29.1 to 17.8 (Karlin, et. al., 2015). Significant increases in life quality were reported by both groups, especially in the older group (Karlin, et. al., 2015). These findings suggest CBT can be highly effective with older patients who suffer from severe depression (Karlin, et. al., 2015).

Similarly, Serpa, et al., (2014) recruited a cohort of 79 outpatient veterans with debilitating stress and anxiety to test how mindfulness-based stress reduction, delivered in nine weekly sessions for six months, helped subjects cope with mental disorders and suicidal ideation. Data from all three quantitatively-analyzed studies (Karlin, et. al., (2015), Trockel, et. al., (2015),

and Serpa et. al., (2014)) support cognitive behavioral therapy to treat symptoms of depression. The study by Trockel, et al, (2015) showed an 11% decrease in reported suicidal ideation after therapy ( $P < 0.001$ ) and cognitive based therapy treatments lead to a 65% reduction likelihood suicidal ideation. Paralleling this is the data from Serpa et al. (2014), where significant reductions in anxiety, depression, and suicidal ideations were found in the veterans who underwent cognitive behavioral therapy. Given the sample size of these clinical trials and statistical significance of the findings, the studies strongly suggest cognitive behavior therapy is an effective treatment for symptoms of depression in veterans, particularly with respect to a decrease in suicidal behavior (Trockel, et. al., 2015).

### **Qualitative Results**

Sometimes it is necessary to modify the typical approach to providing cognitive based therapy in order to better reach a unique health care population. This is especially true when caring for patients who live far from a hospital or do not have the ability or means to travel to treatment. It makes sense, then, when dealing with novel or innovative modalities that researchers must rely on more qualitative information from the subjects, since popular opinion of new technology might be just as important as its efficacy. The following studies rely mostly on qualitative data and inform this crucial area of study.

One example of changing a therapy modality is the study by Bush et al. (2014) which described the process and results of designing a smart phone application (app) made to provide cognitive based therapy for suicidal veterans. Eighteen veterans diagnosed with major depressive disorder with histories of suicidal behavior downloaded the phone application and used it when they felt depressed or suicidal. After every week, the subjects were asked questions regarding how the app helped them and whether they would recommend it to others (Bush, et. al., 2014).

Two similar examples of how cognitive behavioral therapy can be modified to reach particular populations are highlighted in studies by Matarazzo et al. (2014) and Koons et al. (2001). One therapy was tailored to meet the unique needs of veterans with traumatic brain injuries (TBI) (Matarazzo, et. al., 2014) whereas, the other therapy was created to help female service members who suffer from a variety of mental health disorders, including major depression (Koons, et. al., 2001). Koons et al. (2001) recruited a sample of forty subjects diagnosed with borderline personality disorder and randomly split them in half into two separate therapy groups: Treatment As Usual (TAU) and a kind of CBT called Dialectical Behavioral Therapy (DBT). Subjects went through therapy for six months and were assessed for level of satisfaction with therapy and for symptoms including suicidal behavior, depression, hopelessness, and anger expression (Koons, et. al., 2001). Likewise, the study by Matarazzo et al. (2014) enrolled eighteen veterans who underwent therapy twice a week for five weeks. The ten sessions focused on things such as group formation, socialization, living a healthy lifestyle, relationships, personal beliefs, and how to trouble shoot life's difficulties (Matarazzo, et. al., 2014). The studies assessed the veterans every week regarding their thoughts as to the efficacy of the program. Matarazzo et al. (2014) used methods such as interviews, client-satisfactions questionnaires, and feedback surveys to determine these satisfaction rates. In addition, this study better quantified the data by asking questions on a scale from 1 to 4 (1 meaning the interventions did not help at all and 4 meaning the interventions were the best subjects had ever underwent). Results showed an average score near 3.5 for all survey criteria. Both studies found significant reductions in depression symptoms such as hopelessness and suicidal ideation, along with a high overall satisfaction from the study participants (Matarazzo, et. al., 2014). This mirrors the other qualitatively analyzed studies in that the researchers were primarily interested in the opinions of its subjects about the therapy

(Bush, et. al., (2014), Koons, et. al., (2001)). Every veteran thought the program helped with the difficulties of injuries and allowed them to overcome their depressive symptoms like hopelessness, anxiety, and suicidal ideations (Matarazzo, et. al., 2014).

A case control trial by Loboprabhu, Molinari, and Asghar-Ali (2015) found similar results. The study took severely lonely, depressed geriatric veterans and studied how validation, mentalization, reality orientation, and socialization interventions impacted the individual's hostile and helplessness behaviors. Validation was used by study administrators to provide patients with a sense of safety and rapport with the study staff. Mentalization helped the individual recognize their own mental condition and allowed them to recognize the mental processes of others. Through reality orientation, the individual was given feedback about whether their perceptions were accurate, and socialization allowed the individuals to put into practice social skills they may have lost due to prolonged isolation (Loboprabhu, Molinari, & Asghar-Ali, 2015). Just like the other research, this study found that participating in weekly cognitive behavioral therapy sessions vastly decreased the level on hopelessness, hostility, and suicidal ideations (Loboprabhu, Molinari, & Asghar-Ali, 2015).

### **Summary**

A literature review was done to answer the question as to whether cognitive behavioral therapy is an effective treatment to decrease depressive symptoms in veteran populations. In a review of the before mentioned databases, from 2001—2016, seven original research based articles were found on the topic. Veteran populations with a wide variety of comorbidities (i.e. PTSD, insomnia, BPD, etc.) related to underlying depression all had similar results. Every study reviewed suggested that CBT is an effective treatment in this population. However, larger studies must be conducted to better generalize findings to other populations. These studies should be

randomized control trials and should incorporate a number of different comorbidities to determine whether these other issues impact CBT's efficacy.

### **Discussion**

Regardless of the strength of the data presented by the article, all mentioned studies provide data which support cognitive behavioral therapy to treat depressive symptoms in veterans. Some studies consisted of ground breaking therapy which cater to patient populations otherwise unreachable, but lacked the sample size and objective, quantitative data needed to make broad generalizations about efficacy. These kinds of studies will likely need further investigation to determine the individual effectiveness and practicality of treatments. Conversely, many of the studies have evidence that strongly suggests the treatment and have the statistics to back up these claims. These studies should be tested and refined to better inform practitioners in their search for the best treatments of depression in veteran populations.

Even though positive results were found throughout the studies and these results are likely to be expected when caring for diverse populations, some limitations still exist. For example, the sample size for most of the studies was too small to make broad generalizations for treatment. If there were larger sample sizes and more quantitative results, the treatment might be more easily implemented on a larger scale. Another challenge that researchers may confront when studying whether CBT is an effective treatment is patient non-compliance. If an individual is depressed and exhibits symptoms such as hopelessness, aggression, or an apathetic attitude, he may not want to participate in the required sessions or take the necessary medications for the study. It would be impossible to determine the efficacy of a treatment if a patient decides not to follow the treatment regimen. Patient security and confidentiality is also an issue when considering treatments which use mobile apps to deliver therapy. These applications and the

mobile devices used to deliver therapy would have to be technologically ironclad to ensure the safety of patient medical information. Randomized trials which utilize patient specimens to assess things like blood lithium or potassium levels will have to take extra steps to keep patients and study administrators blinded. These extra steps will require a complex form of confidentiality and may cause the trial to take much longer than other, non-blinded studies.

### **Conclusion**

One would imagine that generally, it is helpful to sort through life's difficulties in conversation with someone who can provide unbiased advice. Therefore, it is not surprising that all results found in the studies point to the pattern of cognitive behavioral therapy as an effective and well-accepted treatment to decrease symptoms of major depressive disorder in veteran populations. The strength of evidence varies from study to study, given the difference in sample sizes, randomization, and form of data (qualitative or quantitative). These differences can be used to identify significance in the studies. For example, the study by Karlin et al. (2015) used universally-recognized data measuring platforms to assess the severity of depression in a large sample group before and after interventions. Randomized trials are also helpful because they eliminate certain variables which can get in the way of identifying generalizations in the results.

### **Recommendations**

Although some veteran populations have unique, life-changing experiences on the battlefield, many of these experiences mirror those of other individuals. The studies exhibited in this review show that cognitive behavioral therapy may be an effective treatment for decreasing symptoms of depression in individuals suffering from a wide variety of mental health disorders, so this treatment should be made readily available to broader patients who suffer from those same mental illnesses. These populations, such as battered women, refugees, children suffering

from PTSD, or the millions of Americans who struggle with major depression could be treated with CBT as well, in both inpatient and outpatient settings.

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