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### Impact of Cognitive Behavioral Therapy on military suicide rates

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## **IMPACT OF COGNITIVE BEHAVIORAL THERAPY ON MILITARY SUICIDE RATES**

### **ABSTRACT**

*Introduction:* Suicide has been labeled a serious public health dilemma in the United States. Military personnel have suicide rates greater than non-military individuals. Cognitive Behavioral Therapy has been used as a means to help military personnel to overcome suicidal thoughts and feelings.

*Purpose of the Study:* The purpose of this study was to analyze the effect of Cognitive Behavioral Therapy on military patients' mental health and how it affects the rate of suicidal ideation, suicide attempts, and deaths by suicide in military patients.

*Methodology:* This study utilized a literature review and a semi-structured interview with a Veteran Affairs social worker. Multiple databases were used to collect 36 total sources. All sources were in English and published from 2012 to 2022. 18 sources were used in the introduction and 18 sources were used in the results and discussion section.

*Results:* The results showed that overall, CBT has a beneficial impact on suicide rates and suicidal ideations amongst military veterans. As well as the factors that contribute to suicidal ideations, such as depression, anxiety, and PTSD.

*Discussion/Conclusion:* The literature review found evidence that CBT had better outcomes for military veterans' suicide rates and suicidal ideations. However, this was not the case for all the studies as some indicated little significance in CBT reducing the suicide rates of military

veterans. Further study is needed to evaluate how CBT effect military veterans suicide rates and suicidal ideations.

*Keywords:* Cognitive Behavioral Therapy or CBT, mental health, military, suicide, suicidal ideations, Veteran Affairs or VA.

## INTRODUCTION

Suicide has been labeled as a serious public health problem that not only has affected the United States (U.S.), but has also impacted globally (WHO, 2021). Suicide was found to be the twelfth leading cause of mortality in the United States with over 45, 900 deaths in 2020 (CDC, 2022). An estimated 1.20 million individuals attempted to commit suicide in 2020 (CDC, 2022). Many different contributors increased an individual's risk of committing suicide: biological, psychological, clinical, social, and environmental factors (Turecki, 2019). Most individuals who have these risk factors for suicide might not attempt suicide, but have thoughts of committing suicide (NIH, 2021). Suicidal ideations have a broad definition to describe the range of contemplations, wishes, and preoccupations with death and suicide that an individual has (Harmer, 2022). The broad range of suicidal ideation scale has caused challenges for clinicians, researchers, and educators because, unlike suicide rates, it could not be accurately measured (Harmer, 2022).

In 2019, 17 U.S. veterans died from suicide every day, a rate 1.5 times more than nonveterans after age and gender adjustments (Novotney, 2020). Research has linked trauma exposure, which could lead to Post-Traumatic Stress Disorder (PTSD), and feelings of guilt, shame, and depression as potential contributors to military personnel to suicidal ideations (Bryan, 2013). Additionally, relationship problems, financial stress, and legal or disciplinary

problems have also been labeled as factors that lead to military suicides (Wall, 2021). Suicide rates in active-duty military members and veterans have steadily climbed to four times the amount of killed in action deaths in the past 20 years, going from 25.5 per 100,000 in 2005 to 45.9 per 100,00 in 2021 (McAlpine, 2021). However, this trend has started to change as the suicide rate in military personnel has begun to decrease in recent years (VA, September 2021). Of the 45,861 suicides in 2019, 6,261 were veteran-deaths, which was 399 fewer than in 2018 (VA, September 2021).

The VA, a government program, has provided numerous services to veterans and their families. Some services that have been provided have been education opportunities, rehabilitation services, home loan guaranties, pensions, burials, compensation payment and healthcare (VA, April 2021). The Veterans Health Administration (VHA), the largest of the three administrations that comprise the VA, has met veterans changing medical, surgical, and quality-of-life needs (VA, January 2021). The VHA has grown to have 1,600 health care facilities, which included 144 VA Medical Centers and 1,232 outpatient facilities (VA, January 2021). There were 35% of military veterans with current suicidal ideation engaged in mental health treatment, that was double the amount of non-VA users (Nitcher, 2021). Treatment programs provided included traumatic brain injuries, PTSD, suicide prevention which can be provided at VA outpatient clinics and via telemedicine (VA, April 2021). In August 2019, the VA and Department of Defense released a new guideline that was developed to help with the assessment and management of patients at risk of suicide (VA, 2019). One of the recommendations was to integrate screenings for suicide risk into all clinical settings, which was already in-progress by the VA's Office of Mental Health and Suicide Prevention department (VA, 2019).

Evidence has been found to support the use of face-to-face or internet-delivered Cognitive Behavioral Therapy (CBT) to reduce suicidal ideations, suicide attempts, and deaths by suicide (Flygare, 2020). CBT has been defined as a type of talk therapy that has helped patients learn new techniques to deal with stressful experiences (NIH, 2021). Patients have been taught to recognize that their thoughts have become suicidal and to consider alternative actions (NHI, 2021). CBT has been helpful in the treatment of mental health disorders, like PTSD and depression, and helped with grief and shame coping (Mayo Clinic, 2019). Studies have found strong evidence which showed that effective CBT among veterans has the odds of decreasing suicidal ideations by 64% at final assessment (Brown, 2016). However, a CBT limitation has been the fact that patients have required multiple sessions and cannot be easily implemented in acute care settings (Novotney, 2020).

The VA not only used traditional CBT, but also used a specific type of CBT known as Brief Cognitive Behavioral Therapy (BCBT) which can be used when there was a time constraint. It was developed and adapted for the military setting specifically as it was a condensed version of CBT that lasted four to eight sessions instead of 12 to 20 sessions (Rudd, 2012). BCBT offered an alternative to traditional psychotherapy that targeted PTSD and major depression (Rudd, 2012). It differed from traditional by (1) purposefully being brief to accommodate the military time demands, (2) emphasized internal self-management, (3) incorporated the common elements of effective treatments, (4) focused on skill development, and (5) considered suicide risk as different from diagnosis and a function of a core skill deficit (Rudd, 2015).

VA facilities have started to put a focus on technology to help military personnel who were at risk of attempted suicide or suicidal ideations (Nelson, 2017). A smartphone app called

The Virtual Hope Box was developed to help with negative thoughts and emotions that could lead to suicidal ideations (Gould, 2019). It was modeled after a CBT technique that used a physical box filled with positive reminders for the patients that remind them, they were loved and had a reason to live (Bush, 2017). The app accomplished this by having patients upload photos, videos, songs, quotes, relaxation methods, and coping tools that can help patients in times of distress (Gould, 2019).

The purpose of this study was to analyze the effect of Cognitive Behavioral Therapy on military patients' mental health and how it affects the rate of suicidal ideation, suicide attempts, and deaths by suicide in military patients.

## METHODOLOGY

The hypothesis of this study was that by increasing the use of CBT among VA patients with poor mental health, the number of suicidal ideations, suicide attempts, and deaths by suicide among VA patients would decrease due to an improvement in mental health. This was measured by comparing the rates reported by VA facilities prior to CBT being implemented and those reported after implementation.

### *Search Strategy*

The methodology for this study was a literature review of primarily peer reviewed journals, news articles, and data analysis from 2012 to 2022. The research determined the impact that CBT had on military patients' mental health and the number of suicidal ideations, suicide attempts, and death by suicide among VA patients.

### *Interview Procedures*

The research group conducted a semi-structured interview with a Veteran Affairs Hospital employee to gain first-person understanding of the VA, military suicide rates, and CBT and relevant answers were used in the discussion. The employee gave verbal consent. The interview was conducted and recorded via Microsoft Teams. The answers were transcribed, then the recording was destroyed once the study was completed. The interview was approved by the Marshall University Institutional Review Board (IRB).

*Step 1: Identifying Literature and Collecting Data*

In search of data and literature relevant to the topic of research, databases such as Marshall University's EbscoHost, Core, ProQuest One Academic, and Google Scholar were used to ensure scholarly sources were utilized. These databases and search engines allowed for trustworthy statistics and information when searching for military suicides and suicidal ideations, Veteran Affairs facilities, and Cognitive Behavioral Therapy. While in search of data and articles related to the research's purpose and hypothesis, multiple keywords were used, such as "mental health" OR "suicide" OR "suicidal ideations", AND "Veteran Affairs" OR "VA", AND "military," AND "Cognitive Behavioral Therapy" OR "CBT," AND "Post-Traumatic Stress Disorder" OR "PTSD," AND "depression," AND "insomnia."

A total of 59 were reviewed for this research, but the only articles included were those that met the inclusion criteria (N= 36). Articles were excluded if they did not meet the inclusion criteria (N=23). All 36 references utilized were subjected to a full-text analysis and included in the data abstraction and analysis. After review, without sources outside the U.S. or did not deal with CBT or suicide, the relevant publications were reduced to 36, 17 included in the results (See Figure 2). The 36 articles cited and used were all limited to the English language and published

within the year range of 2009 to 2022. The articles and statistical data found from the qualitative literature review were the primary source of information to conduct the study. Collaborating the data and collectively determining an accurate trend was key in developing conclusions that support the findings. Research and news articles before 2010 were excluded from the review, except for the PRISMA framework reference which was from 2009. The study was finalized by ML, and JB, and validated by AC who contributed as second reviewer and determined if the references met inclusion criteria.

The use of the conceptual framework in this study was appropriate as the focus was on the effects of VA facility provided CBT on military suicide rates (Waliski et al, 2021). *See Figure 1.* Identifying the effect of CBT on VA patient mental had to be determined and any effects on military suicide rate were also analyzed.

## RESULTS

### *CBTs Effects on Military Veteran's Suicide Rate/Ideation*

#### *Suicide Rate*

CBT is associated with significant reduction in suicide attempts among military personal. Outpatient CBT has been still suggested as being the most well-established form of treatment for veterans experiencing acute suicidal crisis (Peterson, 2019). In 2015, a study suggested that soldiers in brief CBT were 60% less likely to make a suicide attempt during a follow-up opposed to treatment as usual (TAU), which was exemplified by a total of thirty-one suicide attempts made by twenty-six participants across two groups (Group one: CBT [n = 76], Group two: TAU [n = 76]). Including 2 deaths by suicide one veteran in each group, upon completion of the two-year follow-up it was found that eight participants of the CBT group attempted suicide eight



times while the TAU group had eighteen participants attempt suicide (Rudd, 2015). In 2019, TAU was examined and compared with CBT for suicide behavior/attempts and prevention within six months of the study; It was suggested that the CBT group (n = 100) experienced a decrease in suicide attempts, however the strength of evidence for CBT did not seem to prevent or reduce suicide (D'Anci, 2019). However, in 2018, CBT was compared with TAU on posttreatment suicide attempts among three groups of suicidal patients; these three classes corresponded with low (n = 55), moderate (n = 40), and high (n = 57) risk of suicide. It was found that there was a 41% (CBT Treatment) versus 10% (TAU) in the high-risk class, indicating that there was a statistically significant difference between the treatment conditions (Bryan, 2018).

### *Suicidal Ideation*

In 2017 it was suggested that CBT has been associated with significant reductions in active and passive suicidal ideations (Bryan, 2017). More than 70% of veterans have chronic health disorders that put them at risk of suicide, CBT groups in primary care reduced suicidal ideations in veterans (Brief, 2020). In 2019, CBT was found to show modest benefits in reducing suicidal ideation compared to wait-list control or TAU, CBT was also found to reduce suicide attempts compared with TAU (D'Anci, 2019). However, in a study conducted in 2016, it was found that of 902 VA patients (n = 902), 427 (47%) had no suicidal ideation while 405 (45%) had passive suicidal ideation of those groups it was indicated that the odds of suicidal ideation decreased by 64% from the first session to the final assessment (Brown, 2016).

### *CBTs Effectiveness on Contributors of Suicidal Ideation in Military Veterans*

#### *Depression (CBT-D)*

Despite being at an increased risk of experiencing disturbances in mental health, it has been indicated that approximately 82% of veterans received no treatment compared to the 63% of the general adult population (Farrand, 2019). In 2015, a total of 764 veterans aged 18-65 received CBT, and of those that completed all sessions it was found that the mean depression scores declined from 27.0 (standard deviation [SD] = 10.7) to 16.2 (SD = 12.4) indicating significant increases in depression and quality of life (Karlin, 2013). Another study noted 356 veterans receiving CBT and that nearly 70% completed their ten sessions of treatment and found that it improved the mean depression scores by reducing it by approximately 40% from the initial treatment phase (Karlin, 2012). In 2022, there were 3938 participants included in a randomized control trial 31.6% were in the control group and 41.3% were in the CBT group for depressive episodes, it was found that the CBT group (n = 1626.39) experienced significant reductions of developing new depressive episodes in patients with depression (Chen, 2022).

### *Insomnia (CBT-I)*

Koffel, in 2020 indicated that CBT suggested promising opportunities to improve the promotion of mental health, primary care, and sleep with clinical use; the implementation of CBT in VA sleep clinics suggested a potential decrease in risk of harm from sleep medications (Koffel, 2020). In 2015, CBT was used for insomnia among = 405 participants receiving treatments, it was found that at baseline 32% of them endorsed some level of suicidal ideation compared with 21% at final assessment, of the 21% that endorsed some level of suicidal ideation, adjustments for demographic variables and insomnia severity were made, decreasing the Insomnia Severity Index (ISI) score during CBT treatment along with a 65% reduction in odds of suicidal ideation (Trochel, 2015). In another study, it was suggested that CBT had a large effect on a patient's insomnia severity (Pigeon, 2019)

*Post-Traumatic Stress Disorder (PTSD)*

CBT has been found to be effective in reducing the severity of anxiety symptoms among military veterans that complete a three-month follow-up (Arch, 2013). In a 2021 study it has been found that CBT was the most effective form of treatment for veterans suffering from PTSD, this was exemplified by a review that included 41 trials and a beneficial increase in depression and quality of life (Williams, 2021). In 2020, 164 military veterans started treatment in which 158 completed, of those who participated received CBT, which resulted in overall improvements with the reduction of PTSD (4.3/24 points on the Impact of Event Scale IES-6) (Van Der Merwe, 2020).

DISCUSSION

*Results Summary*

One study found that CBT had no significant effect on suicidal ideations among military veterans. This study noted that CBT was found to show modest benefits in reducing suicidal ideation compared to wait-list control or TAU (D’Anci, 2019).

However, majority of the studies found a significant difference between the use of CBT and its effects on suicidal ideations. Some of the studies included more variables than just CBT itself. There were many forms of CBT when treating suicidal ideations as well as many factors that contribute to suicidal thoughts. For example, there is CBT for Depression known as CBT-D, and CBT for insomnia or CBT-I. One study did however mention that CBT is associated with significant reductions in suicide attempts among military personnel, and that outpatient CBT has

still been suggested as being the most well-established form of treatment for veterans experiencing acute suicidal crisis (Peterson, 2019).

### *Semi-Structured Interview*

During the interview with an employee from a Veterans Affairs Hospital, the employee indicated to the interviewer that they utilize CBT on their patients that experience suicidal ideations. This employee mentioned that CBT has a multitude of benefits other than just use on suicidal ideations. A couple of examples that this employee mentioned CBT being used for other than suicidal ideations is anxiety and depression.

This employee also noted that they believe that CBT would be very beneficial to use on clients that are experiencing suicidal ideations. The employee mentioned how utilizing this therapy model can help construct a safety plan for the client. The employee also mentioned that the reduction in suicide rates from the utilization depended on the client's ability to participate in the therapy model.

The employee's overall stance on CBT was that it has been a very beneficial modality and was very helpful for veterans and patients in general.

### *Limitations*

Limitations of the research were due to limited research resources. While there was research on military suicidal rates, a majority did not focus solely on CBT and its effects on military suicide rates. Many of the sources that did focus on CBT and military suicide rates were not scholarly sources and could not be used. Additionally, there was limited article access to

those that were solely focused on CBT. These articles were not accessible through the databases used and cost additional fees to read.

### *Practical Implications*

The practical implication of this study was that CBT does help to reduce the number of suicidal ideations, suicide attempts, and deaths by suicide among VA patients. While it has not been proven that CBT alone helped to reduce these rates, it did play an important role. It also showed that while all VA facilities had the option to provide CBT, it was not the option chosen the most due to time constraints.

### *Conclusion*

The literature review found evidence that CBT had better outcomes for military veterans' suicide rates and suicidal ideations. However, this was not the case for all the studies as some indicated little significance in CBT reducing the suicide rates of military veterans. Further study is needed to evaluate how CBT effect military veterans suicide rates and suicidal ideations.