DECREASING SUICIDE AMONG VETERANS

by

Livia Csonka Marta Perry

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ABSTRACT

Estimates are showing that approximately 22 veterans commit suicide per day. Those at highest risk for suicide are married, white males between the ages of 50-59 with a high school education or higher, located in specific western, central and eastern states. Research has shown that 45% of those who completed suicide have seen their PCPs in the month preceding their death, and 67% of those who attempt suicide receive medical attention as a result. Although PCPs may be in a strategic position to assess for suicide risk within the veteran population, research has shown that suicide screening is underutilized in the Primary Care Setting. A possible cause for this may be the inadequate training of practitioners in the area of suicide screening. Research has demonstrated that educating PCPs in this area resulted in an increase in suicide screening in their practice settings. To meet this educational gap, a podcast was created for the purpose of educating PCPs on the topic of veteran suicidality and suicide screening. To test the effectiveness of the podcast, Montana State University graduate students from the College of Nursing were invited to participate in listening to the podcast. Each participant completed a corresponding pre and posttest. Test results show an average increase of 21% in correct answers when comparing pre and posttest results, indicating that the podcast effectively served to convey intended information to participants.

CHAPTER 1

CASE STUDY

On June 10, 2013, D.S., a veteran of Operation Iraqi Freedom, took a handgun, walked a few blocks away from his house while his wife was working, and as police arrived on the scene, he shot himself in the head (Vogel, 2013). Shortly before his suicide, he wrote a letter to his family where he explained what drove him to suicide (Vogel, 2013). His wife and family have previously given permission to publish the letter in order to expose what they perceive to be critical shortfalls in the mental health treatment of veterans (Madison, 2013). With deep respect for the family and their lost loved one, excerpts from this suicide letter, as published in the Washington Times, is shared with the reader, below.

> *I am sorry that it has come to this.*
>
> *The fact is, for as long as I can remember my motivation for getting up every day has been so that you would not have to bury me. As things have continued to get worse, it has become clear that this alone is not a sufficient reason to carry on. The fact is, I am not getting better, I am not going to get better, and I will most certainly deteriorate further as time goes on...*
>
> *… My mind is a wasteland, filled with visions of incredible horror, unceasing depression, and crippling anxiety, even with all of the medications the doctors dare give. Simple things that everyone else takes for granted are nearly impossible for me. I can not laugh or cry. I can barely leave the house. I derive no pleasure from any activity. Everything simply comes down to passing time until I can sleep again. Now, to sleep forever seems to be the most merciful thing.*
>
> *… The simple truth is this: During my first deployment, I was made to participate in things, the enormity of which is hard to describe. War crimes, crimes against humanity. Though I did not participate willingly, and made what I thought was my best effort to stop these events, there are some things that a person simply can not come back from…*

> *... I am left with basically nothing. Too trapped in a war to be at peace, too damaged to be at war... So you see, not only am I better off dead, but the world is better without me in it…*
>
> *…This is what brought me to my actual final mission. Not suicide, but a mercy killing…now I am free. I feel no more pain. I have no more nightmares or flashbacks or hallucinations. I am no longer constantly depressed or afraid or worried*
>
> *I am free.... (*Madison, 2013).

Background and Significance

As a global leader and principal actor on the international stage, the U.S. has engaged in military occupation and combat for decades. Many have watched loved ones get deployed, wondering whether their goodbye was possibly the last encounter they would ever have with them. According to the Institute of Medicine (2013), in Iraq and Afghanistan wars alone, over 2.2 million troops were sent into battle. After having completed their tour of duty and returning home once again, their families exhale thankfully, trusting the worst is over as they are safe on home soil. However, studies are demonstrating that when a soldier returns home, reintegration into society is not as simple and easy as it may initially sound.

In 2012, more servicemembers died from suicide than in combat (Meghani, 2013). Specifically, in 2012, in Afghanistan alone, 349 US soldiers committed suicide compared to the 295 total numbers of combat fatalities in Afghanistan (Meghani, 2013; Starr, 2013). In 2012, suicidality increased 15 % compared to 2011. Moreover, trends keep moving in a puzzling and worrisome direction, demonstrating that the subject of military suicide deserves urgent attention (Harrell & Berglass, 2011).

The topic of suicide is prevalent not only within the active duty population, but also within the veteran population. Estimates are showing that 22 veterans commit suicide per day (Kemp & Bossarte, 2012). Risk factors that contribute to this high risk status in veterans include male gender, age, marital status, education, ethnicity, location, mental health diagnoses, duration of time exposed to combat, access to mental health services, and moral injury.

Assessing for Suicidal Ideation by Primary Care Providers

Providers in Primary Care Settings are in a key position to assess for suicide risk (Sher, Braquiehais & Casas, 2012). Notably, 45% of those who completed suicide have seen their civilian Primary Care Providers (PCP) in the month preceding their death, and 67% of those who attempt suicide receive medical attention as a result. Considering these statistics, PCPs may be able to play an integral role in suicide prevention (Reed, 2013). Additionally, Primary Care is in a key position to connect suicidal patients for follow up specialty care – this is especially the case when PCPs partner with behavioral healthcare providers (Reed, 2013).

Yet, suicide screening continues to be underutilized in Primary Care settings. In a study of U.S. PCPs, the topic of suicide was only discussed in 11% of patients who (unbeknownst to their provider) had a positive suicide screen (O'Connor, Gaynes, Burda, Williams, & Whitlock, 2013). Of patients demonstrating symptoms of major depression, adjustment disorder, and those seeking antidepressants from their PCP, only 36% were screened for suicidal ideation (O'Connor et al., 2013).

Education of PCPs in the area of suicide training has historically been found to be inadequate (McDowell, Lineberry & Bostwick, 2011). One study found that 60.2% of general practitioners had no formal training on suicide screening (Bajaj, et al., 2008). Training of providers in the area of suicide screening has been shown to increase screening rates; in fact, one study showcased that after educating PCPs in the area of suicide prevention, inquiry about suicide risk increased 219% (Winterstein, 2010).

Problem Statement

There is an alarming trend of suicide within the veteran population, and professionals within Primary Care are in a strategic position to assess for suicide. There is limited information available on suicide screening practices in Primary Care, however there are several studies indicating that suicide-screening practices are insufficient in Primary Care settings. Insufficient screening of high-risk veterans by civilian PCPs may be a contributing factor to high suicide rates and delayed access to timely preventative services.

Purpose

The purpose of this project was to develop an educational intervention, namely a continuing education podcast, designed to help PCPs better address the psychological needs of veterans. Information and communication technology (ICT) has become an effective modality in the transmission of knowledge, especially in the medical field (Brunet, Cuggia & Le Beux, 2011). Podcasting (mobile broadcast content) is emerging as

an efficacious tool for the dissemination of knowledge towards professionals, with the benefit of delivering the information to various devices including computer, smartphone, or videogame consoles (Brunet et al., 2011).

The hope is that this podcast will raise awareness of veterans' high-risk status in regards to suicide, and will clarify specific risk factors that influence suicidality within this population. It seems reasonable to expect that such awareness and understanding will, in turn, serve as motivators to encourage an increase in the depth and scope of suicide screening practices. Hopefully, this will lead to the timely referral of veterans for appropriate follow up care, thus, ultimately preventing suicide.

Definition of Terms

1. *Veteran*. A man or a woman who has served (even for a short time), but are no longer serving in active duty in the U.S Army, Navy, Air Force, Marine Corps, Coast Guard, or those who served in the U.S. Merchant Marines during World War II. Those who served in the National Guard or Reserves may only be classified as veterans if they were called or ordered to active duty, excluding the four to six months of initial training and yearly summer camps (U.S. Census Bureau, 2013).

2. *Suicide.* Death, which is caused by self-injurious behavior with intent to die of the injurious behavior (Centers for Disease Control and Prevention [CDC], 2013).

3. *Suicide attempt*. A self inflicted, non-fatal self-directed potentially injurious behavior with intent to die from the injurious behavior. Suicide attempts may or may not result in injury (CDC, 2013).

4. *Suicidal Ideation*. Considering, thinking about, or planning for suicide (CDC, 2013).

5. *Screening tool*. A procedure or instrument used to identify specific traits at a gross or imprecise level, in contrast to tests with greater precision used for evaluation or diagnosis (McGraw-Hill Higher Education, 2010).

6. *Risk factor*. An exposure, related in some way statistically to the outcome in question (Burt, 2001).

7. *Primary Care.* This project will utilize the definition of Primary Care, as outlined by the Institute of Medicine in 1996:

> "the provision of integrated, accessible health care services by clinicians who are accountable for addressing a large majority of personal health care needs, developing a sustained partnership with patients, and practicing in the context of family and community" (Agency for Healthcare Research and Quality [AHRQ], 2012).

CHAPTER 2

LITERATURE REVIEW

Purpose

The purpose of this literature review is to examine risk factors for suicide within the veteran population in order to better understand the reasons for the growing suicide rates that characterize this population. An additional purpose was to explore the suicide screening practices with respect to the veteran population in Primary Care settings. The literature was reviewed to determine whether an increase in suicide screening of the veteran population within Primary Care settings may serve to decrease suicide rates. Additionally, the effectiveness and reliability of suicide screening in general was also assessed through a literature review.

Method

This literature review was conducted on CINAHL and Medline databases. Key words used include: ‘veteran’, Suicid*’, ‘Primary Care’,‘screen’ + ‘assess*’. The search results detailed below highlight the fact that current research in general has paid relatively little attention to the subject of veteran suicide screening in non-VA Primary Care settings.

Table 1. CINAHL and Medline Database Literature Review.

SEARCH TERM	DATABASE	NUMBER OF REFERENCES FOUND	CONTENT FOCUS
Veteran	CINAHL	1,077	x
Veteran	Medline	2,566	x
Veteran, suicid*	CINAHL	35	Focus: suicide risk factors within the veteran population, as well as possible non-Primary Care systems level changes which could result in more effective care for veterans.
Veteran, suicid*	Medline	464	Focus: Mainly suicide risk factors and treatments (including specific mental health diagnoses), protective factors, theories of why suicide occurs, veteran suicide prevalence rates and trends, suicide prevention strategies, including one article on suicide screening in a Veterans Administration (VA) Primary Care setting.
Veteran, suicid*, Primary Care	Medline	33	Focus: Five articles addressed the topic of suicide screening in Primary Care directly, one of which addressed this topic in non VA Primary Care clinics.
Veteran, suicide screening	CINAHL	0	x
Veteran, suicid*, screen	CINAHL	1	Focus: Important position that PCPs occupy with respect to screening veterans for mental illness and suicide.

Table 1. CINAHL and Medline Database Literature Review, continued.

Veteran, suicid*, screen	Medline	46	Focus: Four articles addressed suicide screening in VA Primary Care settings, one article focused on non VA Primary Care settings.
Veteran, suicide*, assess	CINAHL	5	Focus: risk factors, non Primary Care system level changes
Veteran, suicid*, assess	Medline	171	Focus: 13 articles focus directly on topic of suicide screening in Primary Care settings, two focused on non-VA Primary Care settings.

Findings

Risk Factors

In order to understand the trends of suicidality within the veteran population, certain risk factors need to be identified. This paper will examine factors associated with suicidality in veterans, including: gender differences, age, marital status, ethnicity, education, location, mental health diagnoses, duration of time exposed to combat, pain, moral injury and access to mental health services. Those at highest risk for suicide are married, white males between the ages of 50-59 with a high school education or higher, located in specific western, central and eastern states.

Gender. In the general population, suicide among males is four times higher than in the female population and accounts for approximately 79% of all suicides in the US (CDC, 2012). Among the veteran population, 97% of suicides were among males. In

comparison to females, males are more likely to bring suicide to successful completion and do so by firearms (56% of suicides).

According to the U.S. Census Bureau, 93% of veterans are male. Among males 18 years and older in the general population, 21% have a history of military service (Kemp & Bossarte, 2012). Due to increased risk of suicide within the male gender in the general population, it is predictable that those who are most likely to commit suicide among the veteran population are males. In fact, it was found that suicide among male veterans were statistically higher in all age groups except among those aged 65 years and older (Kaplan, Bentson, Huget & Valenstein, 2012).

A comparison of suicide trends between veteran females versus those in the general population show that females account for 21 % of suicides in the general population and 3% of suicides in the veteran population (CDC, 2012; Kemp & Bossarte, 2012). In the general population, although males are more likely to complete suicide, females were found to be more likely to have suicidal thoughts. Females have been found to most often commit suicide by method of poisoning, accounting for 37.4% of female suicides (CDC, 2012).

Age**.** Among the general population, recent data shows that suicides among 35 to 64 year olds increased 28% between 1999 and 2010 (from 13.7 to 17.6 per 100,000 people) and increased 50% among those in their 50's. The biggest rise in suicide rates in the general population occurred among women aged 60 to 64, where rates rose nearly 60% between 1999 and 2010 (CDC, 2013). Although suicide rates among females were fewer than those of males, increases among male and female suicides in the general

population paralleled each other (CDC, 2013). Data available for 1999 to 2011 indicates that the average age of veteran males who committed suicide was significantly higher than that of civilian males who did so (59.6 year olds compared to 43.1 year olds), and suicide percentages for male veterans aged 50 years or older consistently exceeded those for males of the same age in the general population (Kemp & Bossarte, 2012). Specifically, 69% of veteran suicides were completed by those aged 50 years and older versus 37% in the civilian population (Kemp & Bossarte, 2012). The According to *The Hearing Before the Committee on Veterans' Affairs House of Representatives* (2008), during the years of 2001 to 2005, the highest number of veteran suicides among Veterans Health Administration (VHA) users were among 50 to 59 year olds, totaling 2,097 veteran suicides within this age category. Those veterans between ages 20 to 29 years showed the fewest suicides, totaling 196 suicides from 2001 to 2005. Another study, which grouped together 30 to 64 year old veterans, found that those who fall within this age category had the highest suicide rates among VHA users from 2000 to 2007 (Blow et al., 2012). In agreement with the above findings, a study by Katz, McCarthy, Ignacio & Kemp (2012) found that among VHA users between the years of 2005 to 2008, the highest rates of suicides were among 30-64 year olds in both males and females. Interestingly, among older veterans who committed suicide, it was found that they were more likely to be white, married, and to have died in a rural region when compared to younger veterans (Kaplan et al., 2012).

Among veteran females during 1999 to 2011, similar to overall trends, the age distribution with regards to suicide rates remains similar to that of the general population

(Kemp & Bossarte, 2012). The highest rates of suicide are seen among 20-59 year olds and lowest rates of suicide can be seen among those 29 years or younger (Kemp & Bossarte, 2012) (Table 2).

Table 2. Veteran Suicide Rates by Age.

Age Group	Non-Veteran	Veteran	VHA Veteran	x^2, p (1)	x^2, p (2)
29 years and younger	21.6%	6.0%	3.0%	3902.36, <.0001	83.38, <.0001
30 – 39 years	19.3%	9.1%	5.2%	1386.39, <.0001	110.38, <.0001
40 – 49 years	24.5%	15.6%	14.0%	833.21, <.0001	12.34, 0.01
50 – 59 years	18.2%	20.0%	23.4%	63.54, <.0001	48.00, <.0001
60 – 69 years	8.1%	16.5%	19.6%	1655.55, <.0001	43.23, <.0001
70 – 79 years	4.6%	18.6%	20.0%	5592.63, <.0001	6.64, 0.01
80 years and older	3.7%	14.2%	14.8%	3980.27, <.0001	0.21, 0.65

(1) Veteran (as indicated on death certificate) compared to non-Veteran
(2) Veteran with VHA service use compared to general population of Veterans (as indicated on death certificate)

(Kemp & Bossarte, 2012)

Although most studies found in this literature review agree that the highest rates of veteran suicides are found among those between the ages of 50 and 59, the Blue Ribbon Work Group on Suicide Prevention in the Veteran Population revealed that some conflicting data regarding suicide risk across age groups exist (Kaplan et al., 2012). They found some evidence that those 24 years and younger may be at higher risk for suicide than other age groups (Kaplan et al., 2012). One example is a recent analysis of data from Oregon showing that suicide rates among younger veterans have increased, while rates among older veterans have decreased (Kaplan et al., 2012). Possible explanations for conflicting data regarding suicide rates across age groups may be due to methodological

differences, differences in study designs (such as inclusion of veterans of different eras, using only VA health care users, different follow up periods) as well as differences in classification of those included in the study (for example, active duty or in reserve forces) (Kaplan, et al., 2012).

Marital Status. Marital status has been shown to impact suicide rates in the veteran population. In particular, single veterans showed lower suicide rates compared to single civilians (Kemp & Bossarte, 2012). On the other hand, veterans who were married/separated, widowed, or divorced showed an increase in suicide rates as compared to the general population. Non-veteran singles accounted for 29% of suicides, in contrast to their veteran counterparts, which accounted for 11.1% of suicides. Married or separated non-veterans accounted for 27.9% percent of suicides, whereas veterans for 38.6% of suicides (Kemp & Bossarte, 2012) (Table 3). Another study found that suicide rates among married veterans ranged from 34.4 to 51.1%, with rates becoming higher as veteran age increased (Kaplan et al., 2012).

Table 3. Veteran Suicide Rates by Marital Status.

Age Group	Non-Veteran	Veteran	VHA Veteran	x^2, p (1)	x^2, p (2)
Married/Separated	27.9%	38.6%	37.1%	1091.35, <.0001	65.96, <.0001
Widowed	4.8%	10.8%	11.1%	1225.35, <.0001	3.28, 0.07
Divorced	19.2%	22.1%	29.9%	105.31, <.0001	113.14, <.0001
Single	29.5%	11.5%	11.2%	3467.13, <.0001	7.97, 0.01
Unknown	18.6%	17.0%	10.7%	31.64 <.0001	11.24, 0.01

(1) Veteran (as indicated on death certificate) compared to non-Veteran
(2) Veteran with VHA service use compared to general population of Veterans (as indicated on death certificate)

Main Finding: Veterans who died from suicide were more likely to be married, widowed, or divorced. (Kemp & Bossarte, 2012)

Ethnicity. According to the Suicide Data Report, those veterans at greatest risk for completing a suicide are non-Hispanic whites (approximately 91% of veteran suicides were by non-Hispanic whites compared to 87% of civilians) (Kemp & Bossarte, 2012). In agreement with these findings, The Hearing Before the Committee on Veterans' Affairs House of Representatives (2008) reported that the majority of veteran suicides between 2001 and 2005 were among Caucasians, surpassing suicide rates of any other ethnicity. Similarly, a study by Kaplan et al. (2012) found that the highest rates of suicide among veterans were among whites (versus non- whites) in all age groups.

Those at lower risk are African American veterans, as well as Indian/Native Alaskan, Asian/Pacific Islander and Hispanics (Kemp & Bossarte, 2012) (Table 4). The fewest number of suicides occurred within the Asian/Pacific Islander population, accounting for 0 to 0.9 % of suicides between the years of 2001 to 2005 (The Hearing before the Committee on Veterans' Affairs House of Representatives, 2008).

Table 4. Veteran Suicide Rates by Ethnicity.

Age Group	Non-Veteran	Veteran	x^2, p
Race			
White	87.7%	92.6%	472.13, <.0001
African-American	6.4%	4.5%	128.55, <.0001
Indian/Native Alaskan	1.6%	0.7%	122.17, <.0001
Asian/Pacific Islander	1.6%	0.4%	226.34, <.0001
Other	0.7%	0.2%	89.39, <.0001
Unknown	2.0%	1.6%	10.01, 0.01
Ethnicity			
Hispanic	5.4%	1.6%	676.81, <.0001
Non-Hispanic	87.2%	91.4%	351.21, <.0001
Unknown	7.4%	7.0%	6.61, 0.05

(Kemp & Bossarte, 2012)

Education. According to the U.S. Department of Veterans Affairs (2011), data gathered between 2000 and 2009 reveals that approximately 15% of veterans have obtained a college degree, while 25% have had some college. When looking at educational levels ranging from less than high school to five or more years of college, the only cohort who had a lower suicide rate compared to the general population were veterans with less than a high school education. Veterans with only a high school education showed the highest rates of suicide, when compared to other educational levels within the veteran population. (Kemp & Bossarte, 2012). (Table 5).

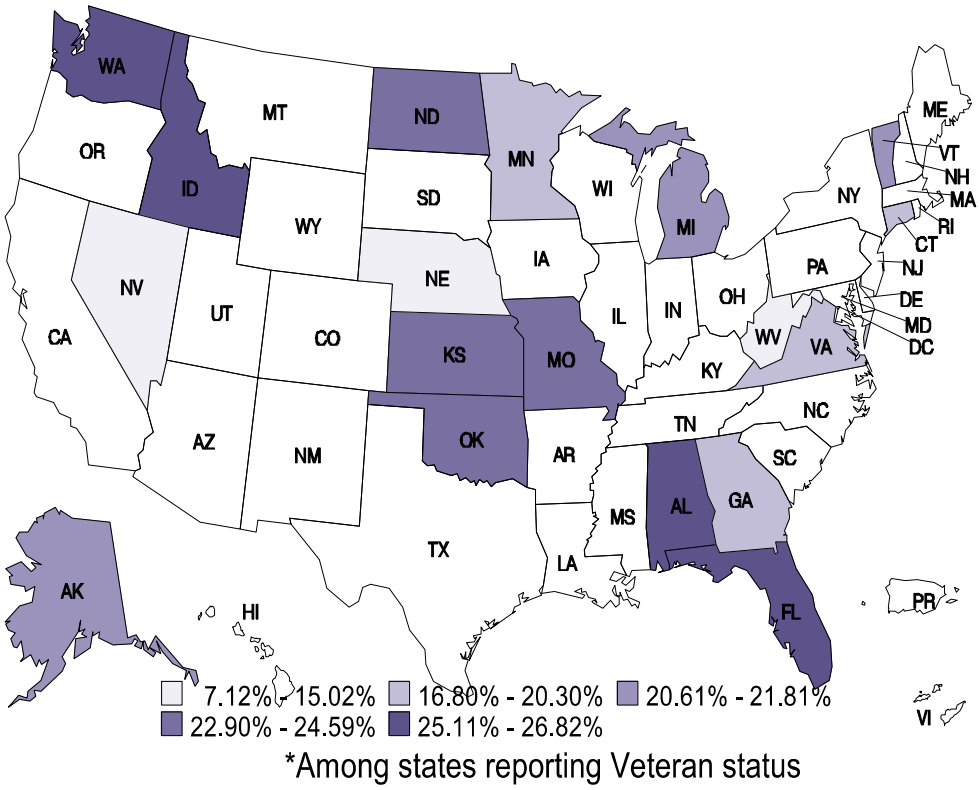
Table 5. Veteran Suicide Rate by Education Level.

Age Group	Non-Veteran	Veteran	x^2, p
Less than High School	17.2%	10.3%	735.37, <.0001
High School	30.8%	35.1%	174.36, <.0001
1 Year of College or Less	6.8%	7.9%	33.15, <.0001
2 Years of College	5.9%	7.0%	42.24, <.0001
3 Years of College	3.3%	3.5%	1.15, 0.28
4 Years of College	7.5%	8.9%	56.24, <.0001
5+ Years of College	4.2%	5.1%	42.10, <.0001
Unknown	24.3%	22.2%	46.23, <.0001

(Kemp & Bossarte, 2012)

State Trends. A survey of suicides reported by the Suicide Data Report shows variability of suicide rates across states with veteran suicides accounting for 7% to 26% of all suicides (Kemp & Bossarte, 2012). Highest rates are seen among Midwestern and

Southeastern States (Oklahoma, Florida, Alabama) while lowest rates are seen among some Southwestern states (Texas, Arizona, California). Although available data for the survey prevented any firm correlates or conclusions explaining this difference, possible explanations are differences in service availability across geographic regions and demographic differences among the states (Kemp & Bossarte, 2012) (Figure 1).



(Kemp & Bossarte, 2012)

Figure 1. Veteran Suicide Rates by State.

Mental Health. Thirty-six percent of Iraq and Afghanistan veterans have been diagnosed with mental health disorders as compared to 26.2% of the general population (National Institute of Mental Health [NIMH], 2013; Seal et al., 2009). Psychiatric

diagnoses are associated with increased risk of suicide in veterans. (Ilgen et al., 2010). The duration of time exposed to combat has turned out to be a strong predictor for the severity of mental health problems (Dohrenwend et al., 2006; Rozanov & Vladimir, 2012). Several mental health diagnoses and conditions are considered to be risk factors for suicide. These include bipolar disorder, posttraumatic stress disorder, depression, deliberate self-harm, and pain.

Bipolar Disorder**.** Bipolar disorder is a mental health disorder, which is characterized by unusual shifts in mood, energy, and/or activity levels, as well as changes in ability to carry out activities of daily living. Patients with bipolar disorder experience serious and extreme shifts along the continuum of mood, ranging from depressed mood episodes to manic, hypomanic, or mixed episodes (NIMH, 2013). According to the Diagnostic and Statistical Manual of Mental Disorders, fourth edition- text revision (DSM-IV-TR), to be diagnosed with bipolar I disorder, a history of one or more manic or mixed episodes are necessary (American Psychiatric Association [APA], 2000). Although this disorder is commonly accompanied by a history of major depressive episodes, they are not required for the diagnosis of bipolar I (APA, 2000). In order to be diagnosed with bipolar II disorder, one or more major depressive episodes, and at least one hypomanic episode must have occurred (APA, 2000).

In a diagnosis specific analysis, veteran male patients with bipolar disorder showed the greatest risk of suicide (Ilgen et al., 2010). Bipolar disorder was diagnosed in 9% of all suicides among veterans receiving health care services at the Department of Veterans Affairs (Ilgen et al, 2010).

Posttraumatic Stress Disorder**.** Among veterans of Iraq and Afghanistan wars, 21.8% were diagnosed with Posttraumatic Stress Disorder (PTSD) (Seal, et al., 2009). PTSD is an anxiety disorder that can develop after experiencing or witnessing a traumatic event. Symptoms of the disorder can include: flashbacks, nightmares, frightening thoughts, feelings of guilt, loss of interest in activities that were previously found to be enjoyable, "psychic numbing" avoidance of stimuli which are reminders of the trauma, being easily startled, feeling "on edge," experiencing angry outbursts, and having difficulty sleeping (APA, 2000). Those with PTSD have four times the increased risk in suicidal ideation compared to those without (Sher et al., 2012). When untreated, individuals can experience long-term negative consequences, such as drug use, suicide, and marital discord (Rand Corporation, 2008).

According to the DSM-IV-TR, to be diagnosed with PTSD, the predisposing traumatic event must involve actual or threatened death or serious injury, and/or threat to the physical integrity of self or others. Additionally, the person's response to this event must involve intense fear, hopelessness, and/or horror. To meet diagnostic criteria for PTSD, it is a requirement that the event be persistently re-experienced in one or more of the following ways: recurrent and intrusive thoughts and/or nightmares about the trauma, acting or feeling as if the event is recurring, intense psychological distress at stimuli that resemble the event, and/or associated psychological reactivity to those stimuli. Both symptoms of increased arousal and persistent avoidance of stimuli associated with the trauma are required. The presence of symptoms must be more than one month in duration and cause significant subjective distress. Additionally, these symptoms are required to

cause impairment in significant areas of life, such as in social and/or occupational functioning to qualify for the diagnosis of PTSD (APA, 2000).

Together with depression, among returning servicemembers, PTSD costs the United States approximately 6.2 billion during the first two years following deployment, accounted for by direct medical care costs, lost productivity, and suicide (Rand Corporation, 2008).

Depression. Among veterans of Iraq and Afghanistan wars, 17.4% were diagnosed with depression (Seal et al., 2009). Depression is a mood disorder characterized by symptoms which can include: hyposonmia or hypersomnia, loss of interest or pleasure in activities previously enjoyed, feelings of guilt or worthlessness, decreased energy, impaired concentration, changes in appetite, psychomotor retardation and suicidal ideation (APA, 2000). In order to be diagnosed with a major depressive episode, at least five of the aforementioned symptoms must be present every day (and to a degree that cause impairment in significant areas of life such as in social and/or occupational functioning), must represent a change from previous functioning, cause significant subjective distress, and be present for at least 2 weeks duration. To be diagnosed with major depressive disorder, at least two major depressive episodes are required (APA, 2000).

Second to bipolar disorder, veterans with depression were more likely to commit suicide than those with other mental health disorders (Ilgen et al., 2010). Those diagnoses that demonstrate the next greatest risk for suicide are anxiety disorders (such as PTSD), substance use, and schizophrenia (Ilgen et al., 2010; Rozanov, & Vladimir, 2012). What

is most troubling in this context is that only half of those diagnosed seek treatment, and of those who do seek help, only half receive care that is considered "minimally adequate" for their diagnosis (Rand Corporation, 2008). This is particularly the case for veterans returning to rural communities where barriers to care range from cultural, social, economic to general access to health care practitioners.

Deliberate Self Harm**.** Those patients with a history of deliberate self harm (DSH) show an increased suicide risk. DSH is understood to be deliberate acts to harm self, resulting in a non-fatal outcome (Gaynes et al., 2004). Three to five percent of those with DSH will die by suicide within 5 to10 years. Identifying DSH is relevant to the Primary Care practitioner because approximately two thirds of patients who commit DSH visit their PCP within 12 weeks of the episode (Gaynes et.al, 2004).

Moral Injury. An area of research still in its infancy is the subject of moral injury (Maguen & Litz, 2012). According to Litz et al. (2009), moral injury is defined as "perpetrating, failing to prevent, bearing witness to, or learning about acts that transgress deeply help moral beliefs and expectations." When soldiers are confronted with ethical and moral challenges, and deeply held principles and beliefs are transgressed as a result, serious inner conflict, now termed moral injury can result (Maguen & Litz, 2012). War-zone related events that have been shown to contribute to moral injury include: Betrayal (e.g. disloyalty by peers, failure of leadership or failure to live up to one's own moral standards), disproportionate violence (e.g. acts of revenge, mistreatment of combatants),

incidents involving civilians (e.g. assault, destruction of civilian property), and within rank violence (e.g. military sexual trauma) (Maguen & Litz, 2012).

The association between moral injury- related guilt and suicide are still being researched. However, several studies are beginning to show a strong association between the guilt of moral injury and suicide. One such study found that combat guilt was the most significant predictor of preoccupation with suicide as well as completed suicide (Maguen & Litz, 2012).

Pain. In a study by Magruder, Yeager and Brawman- Mintzer (2012), veterans with pain-related diagnoses were more likely to commit suicide compared to non-veterans with pain related diagnoses. Specifically, significantly increased suicidality was noted in veteran patients with head pain or musculoskeletal pain. This highlights the importance of identifying veterans with pain (Magruder et al., 2012).

Challenges and Barriers to Mental Health Access for Veterans. Veterans face unique challenges in accessing mental health services. Various factors have shown to influence access. Stigma and location are two important examples.

Stigma. In a study by Pietrzrak, Johnson, Goldstein, Malley and Southwick (2009), the possible links between social support, beliefs about mental health care, access to mental health care and stigma were examined. Among veterans of Operation Enduring Freedom in Afghanistan, and Operation Iraqi Freedom, negative beliefs about mental health care, psychotherapy in particular, were shown to increase stigma and were found to be a barrier in accessing care. Decreased perceived unit support was also associated

with increased stigma. Additionally, negative beliefs about mental health care were associated with decreased psychotherapy visits and decreased medication visits.

Risk factors and protective factors (such as social support and marriage) associated with barriers to care and stigma were also examined in this same study. Pietrzrak et al. (2009) found that those veterans with specific demographic factors (younger age, male gender, psychiatric conditions, non-white race, service type, negative attitudes about mental health care) were more likely to show increased stigma and experience greater barriers to care (Pietrzak et al., 2009). Additionally, those which screened positive for a psychiatric disorder were more likely to experience stigma (Pietrzak et al., 2009). Social support has been found to potentially counteract the negative influences of increased stigma and increased barriers to mental health care (Pietrzak et al., 2009).

Rurality. Upon returning from active duty, veterans with PTSD often have been found to settle in remote or rural settings in order to increase self-isolation and avoid triggers of PTSD symptoms (Godleski, Ruzek, Greene, & Morland, 2013). Settling in remote regions frequently decreases their access to mental health care. Consequently, their mental health outcomes may be affected. (Godleski et al., 2013).

Although the prevalence of mental health disorders are found to be similar in rural and urban areas, individuals in rural regions seek mental health services less frequently compared to urban populations. Additionally, there is evidence that suicide rates were found to be significantly higher in rural areas (17.9/100,000) compared to urban areas (14.9/100,000), particularly among adult males and children (Gamm, Stone & Pitman,

2010; Hirsch, 2006). Veterans residing in rural areas were also shown to have increased suicide rates when compared to urban regions. In fact, suicide risk within this population was shown to be 20 to 22 % higher among VA health system users than in urban areas (McCarthy et al., 2012). If rural residents choose to seek mental health services, they typically access it later in the course of illness (Gamm et al., 2010). Barriers to accessing mental health services in rural settings appears to be multifactorial, and includes decreased health care seeking behaviors, as well as potentially decreased access to care even when it is sought.

Several factors are considered barriers to accessing mental health in rural areas compared to urban areas, including fewer mental health providers, minimal patient accessibility to the providers, and fewer hospitals offering mental health services (Gamm et al., 2010). Among 1,253 surveyed rural counties with populations ranging from 2,500 and 20,000, approximately three-fourths of these counties lacked a psychiatrist (Gamm et al., 2010). Additionally, only one-half (50%) were found to have a doctorally prepared psychologist or social worker within an accessible distance (Gamm et al., 2010).

Rural patients can experience barriers in accessing mental health providers. Barriers can include: lack of public transportation, longer driving distances, challenging roads and environmental factors such as extreme weather and mountain passes (National Rural Health Alliance [NRHA], 2008). Lack of anonymity and social stigma in rural communities is thought to be another barrier in accessing mental health services (Gamm et al., 2010). Due to the small geographic area and smaller populations in rural

communities “where everyone knows everyone,” stigma is often increased. In turn, many opt not to seek mental health care for fear of being recognized (NRHA, 2008).

The most commonly cited barrier to care in rural settings are “dual” or “overlapping” relationships due to the geographic and social structures of rural communities (NRHA, 2008). Examples of dual or overlapping relationships are outlined by the NRHA – a mental health professional may be asked to treat a neighbor, or a social worker who is also on the school board may discover in a family meeting that a teacher has missed many teaching days due to alcoholism. In contrast, those living in urban settings have access to alternative mental health workers and alternate facilities, establishing clear-cut boundaries between patient and provider.

Cultural, personal, and religious values have also been found to influence healthcare seeking behaviors. Common values of rural residents include self-reliance, strong work ethic, self-care, and unique perceptions of illness and health (NRHA, 2008). Due to these values, rural residents are more likely to seek support in a more informal manner, such as in churches, with neighbors, family, and community groups rather than in formal settings or facilities (NRHA, 2008).

Lack of ability to pay for mental health services has been thought to decrease access to care. Rural residents have been shown to have a lower income per capita as compared to urban residents. Additionally, residents in rural communities more frequently live below the federal poverty level as compared to urban dwellers (NRHA, 2008). More than 25% of rural workers over 25 earn less than the federal poverty rate ($18,390) (NRHA, 2008). Additionally, the U.S. Government has classified 23% of rural

counties as persistent poverty counties (NRHA, 2008). In rural areas, residents below the age of 65 are more likely to be uninsured or underinsured (NRHA, 2008).

In short, all of these factors cause veterans residing in rural areas to experience a greater disease burden and lead to higher costs for mental health services (Wallace, Weeks, Wang, Lee & Kazis, 2006). Alternative methods of providing mental health care (such as telemedicine) could play an instrumental role in meeting the unique needs of rural populations. Provision of telemedicine services has potential to increase access to mental health care.

The podcast created for the purposes of this project may also become a means to educate civilian PCPs residing in rural areas about the unique mental health needs of the veteran population. A benefit to utilizing a podcast as a means of education delivery is that information, which may not have previously been accessible to rural practitioners, can potentially be disseminated to them through the use of technology.

Theoretical Perspectives. The biopsychosicial perspective and the interpersonal-psychological theory of suicide (IPTS) help to better understand suicidality among veterans. On applying the biopsychosocial perspective and IPTS to the topic of suicide, clinicians can better understand the factors that may lead a patient to suicide. From the biopsychosocial perspective, personality, protective/compromising influences and genetic factors are considered (Rozanov & Vladimir, 2012). On the other hand, from the perspective of the IPTS, feelings of patient belonging/burden to people around them, as well as their capability to overcome fears associated with suicide are explored (Selby, Anestis & Bender, 2010).

Biopsychosocial Perspective. Research is finding that a complex relationship exists between genetic factors, personality dimensions, and protective or deteriorating influences of the social environment (Rozanov & Vladimir, 2012). From the biopsychosicial perspective, stressful environmental exposures play a vital role in suicide risk. That is, during stages of human development, genetic predispositions interact with stressful life events and produce maladaptive or adaptive emotional, cognitive and behavioral responses through epigenic mechanisms (Rozanov & Vladimir, 2012).

Interpersonal-Psychological Theory of Suicide. In agreement with the biopsychosocial model and looking at deeper psychological mechanisms, the Interpersonal-Psychological Theory of Suicide (IPTS) identifies the necessary factors for successful suicide completion (Rozanov & Vladimir, 2012; Selby, et al., 2010). Specifically, feelings that one does not belong with people, that one is a burden to society and people, and a capability to overcome the fear associated with suicide are all factors necessary for suicide completion (Selby et al., 2010). These factors are of interest not only in recognizing those who wish to die by suicide, but more importantly, those who are most likely to complete the suicide attempt. This is an important consideration because while 5% of the general U.S. population considers suicide seriously at some point in their lives, only 1.4% of the population actually completes the act. Clearly, there appear to be certain factors that keep suicidal people from actually committing suicide. IPTS hypothesizes the cause for the comparatively low completed suicide rate is due to insufficiently high levels of the three aforementioned factors necessary for suicide (Selby, et al., 2010).

Why are levels of suicide higher in certain veteran age groups as compared to civilian populations? The IPTS suggests that the key may lie in the third necessary factor (capability to overcome the fear associated with suicide) for suicide-acquired capability for lethal self-injury. This theory proposes that to acquire the capability for self-injury, one must develop it over time through repeated exposure to painful events. The military training to kill enemies involves overcoming significant fears, hardships and reservations associated with doing so. A similar habituation process may be responsible for overcoming fears necessary for lethal self-injury (Selby, et al., 2010). Through desensitization, fear and pain become less aversive and more tolerable (Selby, et al., 2010). IPTS suggests that of the three components necessary for completed suicide, acquired capability is the key factor in understanding increased suicide rates in the military.

Emerging research is showing that the IPTS may also be useful as a backdrop to understanding the concept of moral injury. Acquired capability as described in the IPTS, may not only shed light on suicidal behavior in the military, but may also explain post deployment risk taking behaviors (such as increased exposure to violent combat, contact with high levels of human trauma, or killing another person), which may lead to moral injury (Maguen & Litz, 2012).

Suicidal Ideation. In the clinical setting, suicidal ideation is viewed on a continuum, ranging from suicidal ideation without a plan to suicidal ideation with a plan for suicide completion. The latter is considered to be the most severe end of the continuum (Gaynes, et. al., 2004). Suicidal ideation has identifiable symptoms, including

pill-seeking behaviors, talking or writing about death/suicide, hopelessness, rage, uncontrolled behaviors, increased risk seeking behaviors, revenge, feeling trapped, and saying/feeling that there is no reason for living. Other signs can include panic attacks, insomnia, anhedonia, or severe anxiety (Sher et al., 2012). Suicidal ideation is a strong predictor of suicidal behavior and most of those that attempt suicide report a history of suicidal ideation (Sher et al., 2012).

Outcomes of Suicide Screening. The U.S. Preventive Services Task Force recently issued a statement stating that in the Primary Care setting, they are neither for nor against universal screening in the general population. This is a result of insufficient evidence regarding suicide-screening effectiveness in reducing mortality and detecting suicidality (U.S. Preventive Services Task Force [USPSTF] 2013). However, this same report also stresses that screening can be applied to high-risk populations, such as those with psychiatric illnesses (USPSTF, 2013). In view of veteran risk factors for suicide discussed above, as well as high rates of diagnosable mental illness within the veteran population, it stands to reason therefore, that the veteran population qualifies as a high-risk group for suicide. Therefore it would be appropriate to view it as such when considering suicide screening in Primary Care settings.

Some express concern over the potential negative effects of suicide screening on the patient's mental health status. Anecdotally, some practitioners have expressed fear of triggering thoughts of suicide in patients by inquiring about suicidal ideation. However, among depressed patients, suicide screening in Primary Care was not found to increase suicidal ideation or thoughts that life is not worth living (Crawford et al., 2011). This

literature review did not yield any additional studies examining the negative consequences of administering suicide screenings. Additional barriers to suicide screening include lack of training on how to integrate suicide screening into patient visits, feeling uncomfortable asking questions related to suicide, time pressures, and culture and language barriers (Bajaj et al., 2008).

Summary

The veteran population is considered a high-risk group for suicide. Furthermore, within the veteran population, those at highest risk for suicide are married, white males between the ages of 50-59 with a high school education or higher, located in specific Western, Central and Eastern states. Of Iraq and Afghanistan veterans, a significantly higher percentage received mental health diagnoses compared to the general population. Those with mental health disorders are at a higher risk for suicidal behaviors. Among these, patients diagnosed with bipolar disorder were shown to be at highest risk for suicide, followed by those diagnosed with depression, and anxiety disorders such as PTSD.

Suicidal ideation has identifiable symptoms and is a strong predictor of suicidal behavior. There are tools available to recognize suicidal ideation. These tools are underutilized in the Primary Care setting due to several factors, one of which is inadequate education of healthcare providers in Primary Care settings.

Veterans are not just returning soldiers – they are fathers, brothers, mothers and sisters. Many return home with a considerable burden, which causes suffering not only

for themselves, but also for their families and friends who often lose their loved ones to battle – even if they do finally return home.

Considering society as a whole, the cost of a suffering veteran can be measured not only by looking at the effects on the veteran and their families, but also in lost productivity, medical care and costs associated with suicide. To this end, 6.2 billion dollars are spent in the first two years following deployment for certain veterans (Rand Corporation, 2008) – a considerable financial investment for the citizens of a country, especially during a period of a poorly performing economy. Through provision of comprehensive care to veterans, a burden is lifted not only from the shoulders of the affected soldiers, but from their fellow citizens as well.

Suicide screening is a triage level of care when a soldier returns home. It is in reality, only the beginning of their care. For the next level of care, significantly more work needs to be done – perhaps by partnering with the military in order to find out how to best support returning veterans, so that they can effectively reintegrate into their communities and homes. The hope is that the mental health community, in partnership with other members of the health care team, through adequate post deployment care of soldiers, would be able to prevent many of the negative effects of military service that veterans experience. Through comprehensive care, perhaps, restoration to health for the veteran, their families and their communities would be possible.

CHAPTER 3

METHODS

Podcast

The original motivation for the creation of this podcast came after reading numerous reports discussing increasing suicide rates among Iraqi and Afghanistan war veterans. Additionally, informal conversations with veterans and their family members were considered, specifically those pertaining to the challenges of reintegration to civilian life, such as living with mental health challenges after military service. This led to further research, which revealed that many PCPs were not adequately prepared to provide care to suicidal veterans due to knowledge gaps in the areas of suicide screening and suicide risk factors within the veteran population.

Purpose

This podcast was designed to educate PCPs regarding risk factors for suicide within the veteran population, as well as to educate them regarding the importance of suicide screening practices as a means to identify patients that need to be referred for follow-up care (see Appendix B for podcast outline). The intention is not only to raise awareness, but also by increasing dialogue, to act as a catalyst for future interventions addressing suicidality. A podcast was chosen to convey the intended information for the following reasons: (1) in contrast to face-to-face lectures, a podcast has the potential to reach a wider audience, especially those in rural areas, (2) the convenience of a podcast

allows people to access the information from a wide variety of devices, and (3) the content can be updated and edited with ease as newer research on this topic unfolds.

Development

The information presented in this podcast was obtained from an extensive literature review. Areas discussed in the podcast include: challenges of reintegration into civilian life after active duty, why the topic of suicide screening in the veteran population is relevant, risk factors that place veterans at risk for suicide, challenges to mental healthcare access for veterans, theoretical perspectives on suicide, discussion about suicide screening tools (including use and limitations), and referral of veterans for follow-up care when appropriate. Additionally, several relevant case studies are included in order to demonstrate to the listener the clinical presentation of at-risk veterans.

Target Audience and Participant Recruitment

The primary target population for this educational podcast are civilian PCPs. However, this topic is relevant also to VA PCPs. PCPs were chosen as the primary target audience due to their access to the veteran population for healthcare services, and their subsequent strategic position to refer suicidal patients for appropriate follow-up care. PCPs within the VA system are already mandated to perform suicide screening on all patients (Berger, 2010).

This educational podcast will be posted to an Internet application called iTunes U. According to Apple (2013), “iTunes U is home to more than 250,000 lectures, presentations, videos, readings, and podcasts from all over the world. It’s the easiest way

to get content into the hands of students. Content on iTunes U can be downloaded to any Mac of PC, iPod touch, or iPhone. And because iTunes U is part of iTunes, most students already know how to use it." It is estimated that in 2013, iTunes customer accounts reached 500 million, second only to Facebook among technology companies (Slivka, 2013). Based on the ease of accessibility of podcasts posted to iTunes, and on the wide spread knowledge regarding how to utilize the iTunes application, posting the podcast to this application seemed a logical choice to reach as many PCPs as possible.

For the purposes of this project, participants will be recruited through the Montana State University College of Nursing where information about the podcast will be disseminated to family nurse practitioner students. Montana State University Institutional Review Board approval was obtained. Recruitment of participants will be facilitated by the Associate Dean of Research of the College of Nursing.

Evaluation

In order to evaluate the effectiveness of this educational intervention, a ten-question pre and posttest was developed in the form of an online survey (See Appendix A). Questions within the pre and posttest were formulated to assess provider knowledge regarding the information that is presented in the podcast. Specifically, the pretest is designed to gain an initial assessment of PCP's knowledge regarding veteran risk factors for suicide and suicide assessment and to identify any knowledge gaps regarding this topic prior to listening to the podcast. The posttest is identical to the pretest in content, and was designed to assess PCP's knowledge after listening to the podcast and to determine if any knowledge gaps revealed by the pretest were filled. By comparing the

scores on the pre and posttest, it should be possible to evaluate if the podcast was an effective educational tool for conveying the intended information to PCPs.

The pre and posttest will be posted on to SurveyMonkey. SurveyMonkey is both a website and a service that allows online surveys to be formulated and posted to its own website (SurveyMonkey, 2013). This website was chosen for its easy accessibility to users, as well as its features which allow for the identification of survey objectives, creation of survey questions, and the ability to send the survey to a specified target audience. An additional benefit to utilizing SurveyMonkey is its current widespread use and consequent familiarity with users. In 2011, SurveyMonkey had 8.5 million registered users, more than four times that of Zoomerang, its nearest competitor (Helft, 2011).

In summary, the creation of this podcast is intended to fill the educational gap that may exist among PCPs regarding suicidality in the veteran population. The effectiveness of this educational intervention will be assessed by comparing pre and posttest results.

CHAPTER 4

RESULTS

One outcome of this project was the creation of an educational podcast on the topic of suicide prevention within the veteran population. The purpose of the podcast is to disseminate information about veteran suicide prevention to PCPs, especially those residing in rural areas. Hopefully this will serve to increase suicide screening practices within the Primary Care Setting, and when accompanied by timely and appropriate follow- up-care, will ultimately become a stepping-stone to decrease veteran suicide rates. The effectiveness of this educational podcast in conveying intended material to listeners was assessed by participant completion of both a pre and posttest. A total of 79 Montana State University nurse practitioner students were invited to listen to the podcast and to complete the tests. A total number of nine students participated. Of the nine participants completing the pre-test, eight completed the corresponding post-test. Pre and post-test results were automatically sent to and recorded by SurveyMonkey upon test completion. The results of the pre and post-test are tabulated below (Table 7).

According to SurveyMonkey results, 100 % of students completed the pre and posttest questionnaire in its entirety. The questions most commonly answered correctly on the pretest were questions numbered 1, 2, 5, 6, 7, 8 and 9 corresponding to the content areas of veteran suicide risk (including ethnicity), recommendations for screening, and mental health outcomes in rural settings. The questions most commonly answered incorrectly on pre tests were questions numbered 3, 4 and 10, corresponding to the

content areas of mental health disorders in veterans and suicidal ideation (including gender differences and completed suicide). The most improved area of knowledge after listening to the podcast were in the content areas of gender differences in suicidality, importance of suicide screening in Primary Care and mental health diagnoses in veterans. In general, the pre and post-test results showed there was an average of 21 % increase in correct answers and a 52% decrease in incorrect answers on the posttest as compared to the pretest. Improvements in correct answers increased by a range of 8.33% - 62.55% depending on the question, and improvements in correct scores were noted with all posttest questions except questions 1 and 5. No improvements were noted for question 1, as 100% of participants answered correctly on both the pretest and the posttest. Correct answers decreased by 2.74% on the posttest as compared to the pretest on question 5. Possible explanations may be lack of clarity in content presentation during the podcast or problems with test question writing. These data show that 80% of questions had improved scores when comparing pretest to posttest results, demonstrating that the podcast was effective in disseminating information on veteran suicide prevention to Montana State University graduate nursing students.

Table 6. SurveyMonkey Results.

Pretest and Posttest Questions	Correct Answer	Participant Pretest Answers (%)	Participant Posttest Answers (%)	Improvement in correct answers (Pretest and posttest comparison)
1. Veterans have been trained to be self sufficient and tough, therefore they are not considered to be a high-risk group for suicide.	False	True: 0% False**:** 100%	True: 0% False: 100%	0%
2. Veterans typically experience better mental health outcomes in rural settings (because the setting offers a unique therapeutic milieu and is more conducive to healing) compared to urban settings.	False	True: 11.11% False: 88.89%	True: 0% False: 100%	11.11%
3. The _____ of veterans have a diagnosable mental disorder.	Majority	Majority: 22.22% Minority: 22.22% Unknown: 55.56%	Majority: 62.5% Minority: 0% Unknown: 37.5%	40.28%
4. Among veterans, a diagnosis of depression is linked to suicide more than any other mental health diagnosis.	False	True: 77.78% False: 22.22%	True: 50% False: 50%	27.78%
5. African American veterans have the highest suicide risk among all veterans.	False	True: 22.22% False: 77.78%	True: 25% False: 75%	- 2.78%
6. The U.S. Preventive Task Force is neither for nor against universal suicide screening in Primary Care settings. Therefore the veteran population does not need to be screened for suicide in Primary Care settings.	False	True: 22.22% False: 77.78%	True: 12.5% False: 87.5%	9.72%
7. Suicide screening is best left to mental health professionals, because they are trained more extensively in suicide prevention than Primary Care Providers, and can therefore intervene most appropriately.	False	True: 33.33% False: 66.67%	True: 0% False: 100%	33.33%

Table 7. SurveyMonkey Results-continued.

Pretest and Posttest Questions	Correct Answer	Participant Pretest Answers (%)	Participant Posttest Answers (%)	Improvement in correct answers (Pretest and posttest comparison)
8. _____ caused more deaths among servicemen in 2012.	Suicide	Combat Fatalities: 22.22% Suicide: 77.78% Within Rank Violence: 0%	Combat Fatalities: 0% Suicide: 100% Within Rank Violence: 0%	22.22%
9. Most patients with suicidal ideation end up committing suicide.	False	True: 33.33% False: 66.67%	True: 25% False: 75%	8.33%
10. Females have been found to have suicidal ideation more often than males.	True	True: 0% False: 100%	True: 62.5% False: 37.5%	62.5%

CHAPTER 5

DISCUSSION

Following an extensive literature review, this project investigated the topic of suicidality within the veteran population. Several studies indicated that suicide-screening practices are insufficient in Primary Care settings. A possible explanation for this insufficiency is the inadequate education of PCPs in the areas of suicide prevention and suicide screening practices. To meet this educational gap, a podcast was created focusing on the topic of suicidality within the veteran population, as well as on the importance of suicide screening for this high-risk population.

Strengths and limitations of this project are discussed with recommendations for future improvements to the podcast educational offering. In general, the results indicate that the podcast effectively served to increase the knowledge base of listeners by an average of 21% percent in the area of suicide prevention in the veteran population. According to study results, the greatest area of Montana State University Nurse Practitioner student knowledge about veteran suicide prevention centers around veteran suicide risk (including ethnicity), recommendations for screening, and mental health outcomes in rural settings. However, the greatest area of knowledge deficit is in the area of mental health disorders in veterans and suicidal ideation (including gender differences and completed suicide). These test results indicate that in general, veteran population screening could possibly be improved simply by improving curriculum content, even with only a single podcast.

Project Content

An extensive literature review was utilized for the formation of the project contents. Reputable databases and research articles within the last decade were utilized and incorporated into the content of both this paper and the podcast. Thus, all information presented in the podcast and paper is evidence-based and current.

Project Format

Utilization of a podcast as a method of communication allows for information to be easily retrievable and accessible not only by busy students, but also by PCPs. Moreover, by utilizing applications that generally have high levels of user familiarity such as iTunes and SurveyMonkey, barriers to participation in the podcast and pre and posttest can be significantly reduced. An additional benefit to the utilization of SurveyMonkey is that pre and posttest data are gathered from participants anonymously, thus increasing the probability of participants answering questions honestly and without seeking out additional information to answer the pre and posttest questions. Furthermore, researcher data bias is decreased because pre and posttest results are gathered and automatically tabulated by SurveyMonkey.

Limitations

Participant Recruitment

Participants were recruited from several Nurse Practitioner specialties within the Montana State University College of Nursing, including: Family Psychiatric Mental

Health Nurse Practitioner, Family Nurse Practitioner, as well as Clinical Nurse Leader programs. For the purposes of this project, specific Nurse Practitioner disciplines of participants were not recorded. As a result, it remains unknown if there is a difference in knowledge base regarding veteran suicidality among the nurse practitioner specialties. Similarly, it is not possible to determine which specialty contributed the majority of the data and which disciplines did not participate at all. Therefore it remains unknown if this data can be extrapolated to all Nurse Practitioner disciplines. Additionally, differences in the knowledge base among disciplines regarding veteran suicidality could influence pretest data, and therefore the data regarding the effectiveness of the podcast may also be biased.

Another consideration is that this study excluded other PCP disciplines such as: Medical Doctors, Physician Assistants, Doctors of Osteopathic Medicine, and other Nurse Practitioner specialties. Therefore, data obtained regarding podcast effectiveness as an educational tool may not be indicative of all PCPs. Lastly, because this podcast was tested on students, it remains to be seen if practicing PCPs would benefit from the podcast.

Demographic Data

Demographic data (such as participant age, race, ethnicity, religion, US practice region, and type of PCP) was not gathered for podcast participants. Therefore, it is unclear whether pre and posttest data are influenced by such information. Assessing PCP knowledge, values, and beliefs regarding the topic of suicide by demographic data may be an interesting area of future research to ascertain inherent biases of PCPs and their

potential influence on patient care. For example, according to the Muslim Public Affairs Council (2013), some religions view suicide as a sin and some cultures view suicide as an honorable way to exit shameful circumstances. For example, in Japanese culture, suicide is viewed as honorable in circumstances where it serves to protect the reputation of family members after one has been found guilty of a dishonorable deed (Harris, 2009). By understanding differences in demographic groups, one could potentially improve upon suicide prevention practices in the Primary Care setting by targeting areas of knowledge, values, and beliefs through education.

Sample Size and Period

Although the data showed promise regarding the effectiveness of the podcast in conveying intended information, it is important to remember the study recruited only a limited population, over a limited period of time (Dec 16th, 2013 to Jan 17th, 2014). This resulted in a small number of respondents to the study. Thus, it is not possible to draw conclusions about the podcast's effectiveness beyond the population sampled, such as to other Nurse Practitioner students, or other PCPs from other states and/or other backgrounds or institutions.

Pre and Posttest

The main tool used to assess podcast effectiveness was a ten question pre and posttest. One limitation of using these questions is that they have not been subjected to thorough testing to demonstrate validity and reliability. Therefore, it is possible that data showing podcast effectiveness are influenced not only by podcast content and

presentation, but also by possible flaws in test question writing. Additionally, non-native English speakers were not taken into account when writing test questions or creating the podcast, therefore, data may be skewed if non-native English speakers participated. This could be due to possible lack of understanding of podcast and pre/posttest content, as well as potential cultural influences and attitudes towards suicide, which could distort the results.

Project Assumption

This project assumes that suicidality within the veteran population is significantly affected by suicide screening practices of PCPs and their possible knowledge gaps regarding this topic. However, it is likely that there are other factors influencing suicide prevention in addition to education, for example: health care system issues (e.g. access to care, time constraints of office visits, referred patients not getting seen by follow up care in a timely manner), the prevailing military culture regarding psychiatric care (e.g. factors influencing veteran accesses to mental health care, stigma), veteran location, mental illness treatment protocols and timeliness of implementation. Most likely, like all major public health issues, a successful prevention program is multifactorial, requiring the careful collaboration of multiple professions, organizations and agencies.

Recommendations

Project Recommendations

The original intent was to register this podcast for Continuing Medical Education (CME) credits or as Continuing Education (CE) for nurses as a means of recruiting

participants and advertising availability of the podcast. This would be an effective incentive for participation, as well as a means of recruitment to promote this project. Future use of this podcast as CME or CE may also prove to be beneficial in increasing listenership and, thus, sample size of participants. This may ultimately help in the determination of the true effectiveness of the podcast as an educational tool.

In order to increase the reliability of data reflecting the effectiveness of the podcast as an educational tool, several improvements could be made to this project in the future. Some recommendations include testing the pre and posttest questions for validity and reliability, increasing sample size of participants, inclusion of other Primary Care disciplines into the participant pool, testing podcast on practicing PCPs and collection of participant demographic data. Additionally, increasing the geographic region from which listeners participate could serve to provide additional useful data on podcast effectiveness by eliminating bias that may be region specific.

Future Research

Implementation of Suicide Screening. The utilization of suicide screening practices in the Primary Care setting is complex, and education is only one aspect to successful implementation. Further assessment of barriers to suicide screening implementation in Primary Care settings could be explored through the creation of PCP focus groups and/or surveys. This may uncover several other relevant areas of future research that may help shed light on the topic of suicide screening within the Primary Care Setting.

Multidisciplinary Approach**.** Suicide screening is only one step in suicide prevention within the veteran population. Several other important factors could be explored in order to better understand suicidality within the veteran population, including: effectiveness of follow up care in civilian Primary Care settings, effectiveness of Veterans Administration mental health services, accessibility of mental health care to veterans, and a review of national policies and initiatives surrounding veteran mental health services in order to assess their effectiveness and to understand possible areas of improvement.

Data Tracking**.** While conducting the literature review portion of this project, it became apparent that occasional gaps in data and/or conflicting information regarding demographic data of veterans exist. Future research focusing on how to improve Veterans Administration tracking of demographic data may help the healthcare community to better understand suicide rates within the veteran population, to gain a broader understanding of associated risk factors, as well as to decrease conflicting data that may exist in the literature today.

Military Training**.** With consideration of the concepts put forth by the Interpersonal-Psychological Theory of Suicide (IPTS), a more distant, ambitious and somewhat speculative area of research could possibly result in re-designing the military training of new recruits. The purpose would be to enable soldiers, even in a combat environment, to retain some defense mechanisms that civil society has developed, enabling individuals to maintain contact with their own emotions, preserve at least some

of their natural inhibitions, and thus limit their inclination toward unnecessary violence towards others and themselves. As a result, the third necessary factor for committing suicide, the capability to overcome the fear associated with suicide, may become less prevalent among veterans and may serve to decrease suicide rates.

Research exploring the level and/or effectiveness of preparation that military training provides to new recruits in the areas of mental health may also prove to be useful (e.g. dissemination of information about mental health services available and how to access them, common mental health issues associated with military service as well as useful coping mechanisms and normalization of mental health seeking behaviors and/or other interventions to decrease stigma).

Suicide Screening**.** Although research on this topic is already underway, gaining understanding on how to increase the reliability and validity of the suicide screening process may prove to be invaluable for the mental health outcomes of suicidal veterans. Although current research has already begun to explore the incorporation of suicide risk factor screening into the suicide screening process, future research that explores the validity and reliability of such an approach could be valuable. Additional research that focuses on the method of delivery of suicide screening (e.g. computer or interview based) may also shed light on how to improve the suicide screening process. In addition, because a patient's honest self-disclosure is vital to a successful suicide screen, exploration of possible barriers to the therapeutic relationship between PCP and patient could prove useful.

Conclusions

The purpose of this project was to explore the topic of suicidality within the veteran population. Through an extensive literature review, numerous risk factors for suicide and suicide screening practices within the Primary Care setting were explored. The outcome of this project was the creation of an educational podcast instructing on the topics of suicide risk factors as well as the importance and implementation of suicide screening of veterans into the Primary Care Setting.

In short, the results of this study show that the podcast was effective among Montana State University Nurse Practitioner students in increasing knowledge about veteran suicide prevention. Therefore, it seems reasonable to expect that in the future, this podcast will be an effective tool to disseminate information to PCPs on the topic of veteran suicide prevention. This may especially be the case for those PCPs who may not normally have access to education on this topic due to their remote location, such as those PCPs practicing in rural settings. Ultimately, the hope is that, when accompanied by timely and effective follow-up care through the collaboration of multiple professions, organizations, and agencies, this project will serve as a stepping-stone to decrease suicide rates among veterans.

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APPENDICES

APPENDIX A

PRE/POSTTEST

Participation in this pre/post test and podcast are completely voluntary and will not affect a student's grades or class standing in any way. Participants may choose to stop their participation in the podcast and pre/post test at any time, and are not required to answer any/all questions during the pre and post test.

1. Veterans have been trained to be self sufficient and tough, therefore they are not considered to be a high-risk group for suicide.

True False

2. Veterans typically experience better mental health outcomes in rural settings (because the setting offers a unique therapeutic milieu and is more conducive to healing) compared to urban settings.

True False

3. The _____ of veterans have a diagnosable mental disorder.

Majority Minority Due to faulty reporting, this number is not known

4. Among veterans, a diagnosis of depression is linked to suicide more than any other mental health diagnosis.

True False

5. African American veterans have the highest suicide risk among all veterans.

True False

6. The U.S. Preventive Task Force is neither for nor against universal suicide screening in Primary Care settings. Therefore the veteran population does not need to be screened for suicide in Primary Care settings.

True False

7. Suicide screening is best left to mental health professionals, because they are trained more extensively in suicide prevention than Primary Care Providers, and can therefore intervene most appropriately.

True False

8. _____ caused more deaths among servicemen in 2012.

Combat Fatalities Suicide

9. Most patients with suicidal ideation end up committing suicide.

True False

10. Females have been found to have suicidal ideation more often than males.

True False

APPENDIX B

PODCAST COURSE OUTLINE

Welcome Statement
Welcome to those in attendance.

Brief description of what course will cover
Characteristics of the veteran population will be discussed with special emphasis on implications for the health care team in Primary Care.

Course Objectives
1. Understand the high-risk status of the veteran population in terms of suicide risk.
2. Understand the challenges to mental health access that veterans can experience.
3. Learn about the theoretical perspectives of suicide.
4. Understand the signs of impending suicide.
5. Learn about the importance of suicide screening in Primary Care settings.
6. Learn about screening tools and their administration.

Introduction
Discussion of how reintegration of veterans into society after deployment poses unique challenges. Discussion of why veteran suicide rates have become a topic of concern.

Case Study #1
Case study demonstrating why topic of veteran suicide is relevant.

Discussion of why the topic of suicide screening in veteran population is relevant. (Including statistics below).

- 2.2 million troops sent into battle during Iraq and Afghanistan wars.
- In 2012, more deaths by suicide than by active combat (349 suicides vs 295 combat deaths).
- Suicidality among veterans has increased 15% since 2011.
- How veteran suicide affects family and other social systems.

What risk factors place veterans at risk for suicide?
- Gender differences
    - Female vs. male ages of suicide, methods of suicide
- Veteran age
    - What age groups are least/most likely to commit suicide
- Marital Status
    - single vs divorced/married
- Ethnicity
    - Hispanics vs non Hispanic whites vs others
- Education
    - Less than highschool education vs completed highschool and above
- Differences of suicide risk across states.
    - Comparison of western, central and eastern states

- Mental Health diagnoses
    - Bipolar, depression, anxiety disorders including PTSD, deliberate self harm, Pain

Veterans and mental health access

- Veterans face unique challenges to mental health access:
    - Stigma
        - Social support and perceived stigma, unit support and perceived stigma, risk factors and protective factors associated with perceived stigma, beliefs about mental health care.

    - Rurality
        (PTSD and settling in rural areas, income/insurance disparities in rural settings, rural access to care, provider shortage, dualing roles of providers, attitudes towards health care, lack of anonymity, suicide rates in rural areas, efforts that have been made to meet challenges to rural mental health care)

Understanding suicide

- Introduction of theoretical perspectives on suicide.

    - Biopsychosocial perspective (interplay between biological, social, and psychological factors)
    - Interpersonal- Psychological Theory of Suicide (Including 3 factors and habituation of veterans towards third factor)

- Signs of impending suicide (Suicidal ideation has identifiable symptoms, including pill-seeking behaviors, talking or writing about death/suicide, hopelessness, rage, uncontrolled behaviors, increased risk seeking behaviors, revenge, feeling trapped, and saying/feeling that there is no reason for living. Other signs can include panic attacks, insomnia, anhedonia, or severe anxiety)

Case Study #2

Case study #2 demonstrating signs of impending suicide

Importance of suicide screening

- Discussion of the U.S. Preventive Task Force statement about universal screenings vs. screenings in high-risk populations.
- Review why the veteran population should be viewed as high risk, including DSMV criteria for Bipolar, PTSD and depression
- Discussion of who should assess patients for suicide (Primary Care vs. mental health settings, statistics about Primary Care Providers seeing patients within short time of suicide completion).

- Barriers to completing suicide screenings in Primary Care (including: time, cost, education in suicide screening, worry about negative effects of screening, comfort level with topic of suicide, not knowing what to do if patient screens positive)
- Barriers to completing suicide screenings (addressing barriers cited above)

Suicide Screening Tools

- Discussion of most common available tools as well as differences between them.
- How long does it take to administer a screening tool?
- Teach how to administer a suicide screening tool appropriately.

Case Study #3

Case study #3 demonstrating use of screening tool

Summary

- Recap of information learned (Veterans are at high risk for suicide, defining characteristics that place them at risk, understanding suicide & signs of suicide, importance of suicide screening for veterans, administration of suicide screening tools)

Concluding Statement

Conclude the course and thank attendees for listening and taking interest in this important topic.