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Increasing the Accuracy of the Military's Post-deployment Mental Health Screening Strategies

Daniel Fass
Indiana State University

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INCREASING THE ACCURACY OF THE MILITARY'S POST-DEPLOYMENT MENTAL
HEALTH SCREENING STRATEGIES

A dissertation

Presented to

The College of Graduate and Professional Studies

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by

Daniel Fass

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COMMITTEE MEMBERS

Committee Chair: Debra Leggett, Ph.D.

Assistant Professor of Counseling

Indiana State University

Committee Member: Kevin Bolinsky, Ph.D.

Assistant Professor of Psychology

Indiana State University

Committee Member: Joseph Biggs, Ph.D.

Behavioral Science Coordinator

Family Medicine Center

ABSTRACT

The author investigated the prevalence rates of mental health problems reported by college students and compared them with previously existing data on active duty, reserve, and National Guard Operation Iraqi Freedom veterans. Participants completed the mental health portion of the Post-Deployment Health Re-Assessment and an additional questionnaire in which the effect of a drug use screen was explored. Subjects were also asked about their intentions to seek mental health or substance abuse treatment and how anonymity affected their treatment seeking and reporting accuracy. Results indicate similar and at times higher rates of mental health problems in the sample of college students and perhaps highlight the problems associated with post-deployment mental health screening, including stigma associated with reporting and seeking mental health treatment. These results signal an underestimation of the mental health concerns of military personnel and highlight the need for anonymous post-deployment screening procedures as well as more anonymous treatment options.

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CHAPTER 1

INTRODUCTION

On March 20, 2003, the United States launched Operation Iraqi Freedom (OIF), the largest military ground operation since the Vietnam War. Previous research conducted on soldiers returning from similar overseas conflicts has shown a rise in psychiatric symptomatology and substance abuse (Center for Disease Control Vietnam Experience Study Group, 1988; Helzer, Lee, Robins, & McEvoy, 1987; Iowa Persian Gulf War Study Group, 1997; Kulka et al., 1990; Roszell, McFall, & Malas, 1991). Preliminary research conducted on OIF veterans has also shown that there is a significant increase in PTSD, interpersonal conflict, and alcohol abuse and has found that younger veterans are at the greatest mental health and alcohol-related risk (Bliese, Wright, Adler, Thomas, & Hoge, 2007; Hoge, Auchterlonie, & Milliken 2006; Hoge et al., 2004; Jacobsen et al., 2008; Milliken, Auchterlonie, & Hoge, 2007). However, the mental health effects, including the variables related to substance abuse, of this active operation and Operation Enduring Freedom-Afghanistan (OEF-A), another recent combat operation, are yet to be fully and properly explored. In particular, there is a paucity of research that validates the accuracy and efficiency of the military's post-deployment mental health screening procedures.

Much of the mental health research conducted on military personnel returning from Iraq and Afghanistan has been done using the Post-Deployment Health Assessment (PDHA) and

Post-Deployment Health Re-Assessment (PDHRA, 2005), which are given to veterans immediately after returning home from combat and again three to six months thereafter (Hoge et al., 2006; Milliken et al., 2007). The primary purposes of the PDHA and PDHRA are to assess veterans' physical and mental health after deployment and to assist military healthcare providers in identifying military personnel in need of medical care and providing present and future care (Bliese, Wright, Adler, Hoge, & Prayner, 2005). Because of the emergence of technology in the 21st century, this is the first time it is possible to administer surveys and compile data on the entire population of veterans returning from combat. However, numerous problems have been associated with the use of these post-deployment screening procedures. Most importantly, the stigma and unintentional discrimination associated with admitting mental health concerns, a lack of anonymity in reporting, and the inability or reluctance to measure illegal drug use have led to the inefficiency of these assessments in recognizing who is in need of treatment and who will actually seek treatment because of a mental health or substance-related problem (Corrigan, Markowitz, & Watson, 2004; Hoge et al., 2004; Jacobsen et al., 2008). In addition, the PDHA and PDHRA have been used without comparison to an age-related or mental health and substance use at-risk civilian control group (e.g., college students), possibly contributing to an inaccurate depiction of the future mental health of veterans by not taking into account how a non-veteran population will score on these screens (Blanco et al., 2008; Knight et al., 2002; Slutske, 2005).

For instance, Milliken et al. (2007) reported that 74% of active soldiers who accessed mental health care in the 30 days after taking the PDHRA had not been identified or referred through this process. In addition, only 41.8% and 61%, respectively, of those referred through the PDHA and PDHRA accessed mental health care 90 days after their referral, calling into

question the ability of the PDHRA's mental health screens to detect those in need of treatment and make appropriate and timely referrals. Similarly, Hoge et al. (2006) reported that less than 10% of all service members who received mental health treatment following the PDHA were referred or identified as needing treatment. Hoge et al. (2004) also reported that up to 60% of military personnel who met the criteria for a mental health problem were unlikely to seek treatment because of perceived stigma and discrimination, further indicating the difficulty associated with admitting a mental health problem while in the military.

By far the biggest the problem associated with these screens is the detection of individuals who will seek and need substance abuse services after deployment. Preliminary research from a number of studies using different screening measures has shown that veterans, especially those under the age of 26, are at an increased risk to develop problematic drinking habits and drink significantly more than they had pre-deployment (Hoge et al., 2004; Jacobsen et al., 2008; Milliken et al., 2007). Such studies have caused concern and commotion over the alcohol and substance abuse patterns of our veterans. For example, Hoge et al. (2004) found post-deployment alcohol misuse rates to be as high as 35%. Jacobsen et al. found prevalence rates of heavy weekly drinking, binge drinking, and alcohol-related problems to be 12.5%, 53%, and 11.9%, respectively. In addition, results from the PDHRA indicate that 11.8%-15% of OIF veterans are misusing alcohol (Milliken et al., 2007). However, only 0.2% are referred and less than 0.1% have ever received substance abuse services, calling into question the utility of the PDHRA in identifying those who need to be referred and those who are willing to go to substance abuse treatment (Milliken et al., 2007). Subsequently, the high percentages of reported alcohol misuse and mental health problems reported on these assessments are difficult

to interpret and cannot be used as data to accurately predict the number of veterans who will seek future treatment.

Statement of Problem

Early evidence demonstrates a high prevalence of mental health and substance abuse concerns among OIF/OEF-A veterans (Hoge et al., 2004; Hoge et al., 2006; Milliken et al., 2007; Seal, Bertenal, Miner, Sen, & Marmar, 2007). However, post-deployment health assessments have shown limited utility in predicting who will seek DOD and VA mental health and substance abuse treatment soon after returning home from combat. In addition, veterans in need of treatment at the time the PDHRA is administered are going unrecognized and without a timely referral to mental health services. As a result of not asking the right questions or providing an appropriate atmosphere to admit mental health problems and seek services, veterans who now have an acute mental health problem may develop a chronic illness, and those who abuse substances may be at risk to become dependent.

Statement of Purpose

The primary purpose of this study is to compare rates of depression, PTSD, suicidal ideation, interpersonal conflict, interpersonally aggressive ideation, and alcohol abuse between the results of OIF veterans' PDHRA screens as reported by Milliken et al. (2007) and an age-related at-risk civilian sample. Through these comparisons with a sample similar in age, without combat experience or concern about discrimination and stigma in reporting, the author hopes to give a more accurate depiction of the health status of veterans and offer a reason for inconsistent treatment-seeking percentages of those veterans with mental health risks. The secondary purpose of this research is to assess whether anonymity in reporting, having anonymous

treatment services available, and including a question about drug use can increase the sensitivity of the PDHRA in identifying those in need of and willing to go to mental health treatment.

Research Questions

1. Are mental health risk rates, which include suicidal ideation, depression, PTSD, aggressive ideation, and interpersonal conflict, significantly higher on the PDHRA in OIF veterans after returning home from overseas conflict as reported by Milliken et al. (2007) when compared to an age-related civilian sample?
2. Are rates of alcohol misuse in OIF veterans after returning home from overseas conflict as reported by Milliken et al. (2007) significantly higher when compared to an age-related civilian sample?
3. Will an additional question assessing drug use identify individuals willing to go to substance treatment who would not have otherwise have been recognized as needing a referral as evidenced by the other PDHRA mental health screens?
4. Will anonymity in reporting (or in this case reporting anonymously over the Internet) result in a more accurate admission of mental health concerns and alcohol problems?
5. Will having anonymous treatment services available increase the likelihood that individuals with mental health or substance abuse problems will seek treatment?

Hypotheses

1. PTSD and interpersonal conflict prevalence rates will be the only statistically significantly higher mental health concerns between veterans and a civilian sample.
2. Alcohol misuse rates will not be statistically significantly different between veterans and a civilian sample.

3. An additional question assessing drug use will identify a clinically significant number of individuals willing to attend substance abuse treatment who would not otherwise have been recognized as needing referral through the PDRHA screens.
4. More than half of participants will report that being able to answer anonymously increases the accuracy of their self-report concerning their mental health and alcohol problems.
5. Twice as many participants with a mental health or alcohol risk will report willingness to seek anonymous treatment if available than had planned on attending mental health or substance-related treatment services within the next 90 days.

Definitions

Operation Iraqi Freedom (OIF) is an ongoing conflict which began on March 20, 2003 with the United States-led invasion of Iraq by a multinational coalition composed of U.S. and U.K. troops supported by smaller contingents from Australia, Poland, and other nations.

Operation Enduring Freedom (OEF) is the official name used by the U.S. Government for one of its military campaigns in the Global War on Terrorism which started after the September 11, 2001 attacks on the United States. *Operation Enduring Freedom-Afghanistan (OEF-A)* refers specifically to the operation occurring in Afghanistan.

A *mental health risk*, as defined by the PDHRA, refers to one or more of the following responses: a positive response to one of the Patient Health Questionnaire-2 depression items, endorsement of two or more Primary Care-PTSD items, suicidal ideation, interpersonal conflict, or aggressive ideation.

CHAPTER 2

LITERATURE REVIEW

Previous Effects of War on Mental Health and Substance Abuse

The trauma of participation in overseas combat operations similar to OIF/OEF-A has caused a rise in mental health concerns and substance abuse among participating veterans. Most recently this has been demonstrated by the Iowa Persian Gulf Study Group (1997). These authors assessed the effect of war on mental health on Persian Gulf War veterans by comparing the self-reported mental health of veterans who were deployed to the Persian Gulf with that of veterans who were on active duty but were never deployed to a combat zone during the same time period. The authors randomly selected 3695 military personnel and matched Persian Gulf veterans and non-Persian Gulf veterans on age, sex, rank, and branch of military service. They found that those veterans with a tour of duty in the Gulf War had higher rates of symptoms of depression (17% vs. 10.9%), PTSD (1.9% vs. 0.8%), and alcohol abuse (17.4% vs. 12.6%) when compared to those veterans who were active military at the same time but not deployed to the Gulf War.

These results indicate a significantly greater prevalence of alcohol abuse and major depression among those veterans who were deployed to the Persian Gulf. However, no relationship was measured between these two variables, and no assessment was taken before deployment to measure how much these rates increased as a result of combat or overseas

deployment. Furthermore, these veterans were not followed after the assessment, therefore no relationship between alcohol abuse, PTSD, or major depression with mental health or substance abuse treatment utilization can be inferred. However, it may be speculated that coping with the effects and consequences of being in war contributed to the greater prevalence of alcohol abuse and major depression among the Persian Gulf War veterans. Although most likely insignificant, it is noteworthy that the rate of PTSD was much lower among Persian Gulf War veterans (1.9%) compared to Vietnam veterans and OIF/OEF-A veterans. This may be due to the short duration of the war which allowed less time to experience combat situations that could result in PTSD symptomatology. In addition, no measure of drug use was taken for either group.

To demonstrate the mental health effects of war in Vietnam veterans, The Center for Disease Control Vietnam Experience Study Group (1988) examined the psychosocial variables of 7,294 randomly selected Vietnam veterans who served at least one tour of duty in Vietnam from 1965 to 1971 and compared them with a randomly selected sample of non-veterans matched for age, income, education, employment, and relationship satisfaction. The authors found that Vietnam veterans had significantly higher lifetime prevalence rates of depression (4.5% vs. 2.3%), generalized anxiety disorder (4.9% vs. 3.2%), and alcohol abuse or dependence (13.7% vs. 9.2%; $p < .05$). In addition, 14.7% of veterans met the lifetime criteria for combat-related PTSD.

The Center for Disease Control Vietnam Experience Study Group further demonstrated the mental health effects of combat related to certain mental disorders and alcohol abuse and dependence, but the authors failed to demonstrate an effect of combat on current illegal drug abuse or dependence between veterans and non-veterans (0.4% vs. 0.5%). However, this finding could be due to sampling bias. Participants were contacted by phone and interviewed at only one

VA hospital. Veterans and non-veterans addicted to drugs were perhaps harder to contact and subsequently were not able to participate (e.g., homeless, no phone, no permanent address). This difficulty in sampling could have masked a significant difference in drug abuse and dependence rates in Vietnam veterans. Furthermore, this study was conducted in the years before 1988. Drugs that are used more commonly today such as methamphetamine or crack cocaine were not as readily available, making results more difficult to generalize to OIF/OEF-A veterans. In addition, these veterans were not followed after assessment, so no relationship between having a mental health or substance abuse disorder and substance abuse treatment utilization can be measured.

The most comprehensive study of veterans to date, the National Vietnam Veterans Readjustment Study (NVVRS), found that an estimated 829,000 of the 3,140,000 Vietnam veterans suffered from some degree of PTSD more than 17 years after service (Kulka et al., 1990). More than 15% of veterans were at the time suffering from PTSD, and 30% had once met the lifetime diagnostic criteria for this disorder. It was estimated that 39.2% and 5.7% of veterans had once met the lifetime criteria for alcohol abuse or dependence and drug abuse or dependence, respectively. Furthermore, 40.6% of the veterans who had met the lifetime criteria for PTSD had also met the diagnostic criteria for alcohol abuse or dependence at least at one point in their lifetime, indicating a significant relationship between PTSD and substance abuse. Moreover, those veterans with PTSD were significantly more likely than veterans without PTSD to use VA or non-VA mental health services (24% vs. 10%), indicating that PTSD is a significant predictor of utilization of VA mental health services.

NVVRS found that PTSD is the most common problem for combat veterans and demonstrated an alarmingly high estimated prevalence rate of PTSD and alcohol abuse among

Vietnam veterans. The authors also found a significant association between PTSD and alcohol abuse or dependence and between PTSD and mental health service utilization. However, measuring the relationship between PTSD and drug abuse and dependence and measuring the relationship between alcohol and drug abuse and service utilization was outside the scope of the study.

In contrast to prior studies which highlight the significantly greater prevalence of mental illness and substance abuse disorders found in veterans who served in war and had combat experiences, Norquist, Hough, Golding, and Escobar (1990) found that veterans serving in the post-Vietnam War era, a time of less military combat, had significantly greater prevalence rates of substance use disorders and psychiatric disorders compared to veterans from World War II, the Korean War, and the Vietnam War. The authors found that 40.6% and 20.3% of post-Vietnam War era veterans met the lifetime diagnostic criteria for alcohol abuse or dependence or drug abuse or dependence, respectively. This was significantly greater than any other war-era veteran sample, with the closest being Vietnam veterans (30.6% and 11.5%; $p < .05$). In addition, post-Vietnam War era veterans had significantly higher prevalence rates for any psychiatric disorder than all other cohorts of veterans, $p < .05$. Norquist et al. also found that only post-Vietnam War era veterans had significantly higher lifetime prevalence rates of substance use disorders (47.4% vs. 30.6%; $p < .01$), alcohol abuse or dependence disorders (40.6% vs. 24.0%; $p < .01$), and drug abuse or dependence (20.3% vs. 13.6%; $p < .10$) when compared to age-matched non-veterans. However, the most prevalent diagnosis of World War II, Korean War, and Vietnam veterans was alcohol abuse or dependence (19.1%, 25.3%, and 30.6% respectively).

Although Norquist et al. (1990) demonstrated that war- or combat-era veterans had lower rates of psychiatric disorders and substance use disorders when compared to non-war-era veterans, it did not include a measure of combat experience or a diagnostic category for PTSD, which most likely would be significantly higher in combat veterans compared to post-Vietnam War era veterans and age-matched non-veterans. In addition, lifetime drug abuse and dependence disorders were diagnosed at a higher rate than in previous studies on Vietnam veterans and post-Vietnam War era veterans. Although unlikely due to multi-site random sampling, these results could reflect a paucity of combat experience seen in the sampled veterans from World War II, the Korean War, and the Vietnam War. More likely, these results may reflect societal factors including greater access to and cultural acceptance of drug use in the post-Vietnam War era (Norquist et al., 1990). Furthermore, it would be expected that older veterans would have higher rates of all psychiatric disorders because they have lived longer than younger veterans. However, this was not found, perhaps due to early death of older veterans who abused substances, institutionalization, or forgetting problematic symptoms. The post-Vietnam War era veterans had higher six-month prevalence rates of drug abuse than any other veteran group. This effect was not observed in post-Vietnam era non-veterans and therefore could indicate an increasing tendency in younger veterans to abuse alcohol and drugs and an increasing need to treat and further understand substance abuse in a growing veteran population.

These studies demonstrate an alarmingly high prevalence rate of mental health problems, specifically PTSD and alcohol abuse and dependence, in veterans who have experienced combat. These studies also demonstrate that veterans have higher rates of mental illness after war than the civilian population. Furthermore, they indicate a high prevalence rate of drug abuse and dependence in newer cohorts of veterans who perhaps because of societal factors and substance

availability will continue to have increasingly high rates of substance abuse and dependence. However, because PTSD was not comprehensively studied during the time directly following the Vietnam War, and population-based studies using post-deployment health screens were not possible because of the inability to compile mass data into computer systems, predictors of who sought treatment and barriers to mental health and substance abuse treatment could not be studied. However, data have shown that substance abuse is a significant predictor of using VA health services. Over 9% of almost 17 million outpatient discharges and over a quarter of inpatient hospitalizations for Vietnam veterans at VA hospitals in 1996 were at least somewhat related to substance abuse (Piette, Baisden, & Moos, 1997, as cited in Virgo, Price, Spitznagel, & Ji, 1999). These findings further indicate a greater need to identify and treat mental health and substance abuse problems before individuals reach the point of substance dependence and its associated chronic mental illness, increasing the already overwhelming occupational burden.

Mental Health and Substance Abuse Related Problems of OIF/OEF-A Veterans

The mental health effects of returning OIF/OEF-A veterans, including substance abuse related problems, have only begun to be explored. Because these wars are fairly recent and combat in both regions is ongoing, only exploratory and preliminary research has taken place. For example, Hoge et al. (2004) administered a longitudinal study to a sample of over 6,101 military personnel before and after deployment to Iraq and Afghanistan in order to investigate the effect of these current conflicts on mental health related disorders. They found that soldiers and Marines returning from deployment in Iraq had significantly greater rates of PTSD, major depression, or generalized anxiety disorders (15.6%-17.1%) than returning soldiers after duty in Afghanistan (11.2%) and before either group was deployed (9.3%; $p < .05$). In addition, the authors found that the rate of self-reported alcohol misuse and the perceived need to cut down on

alcohol use significantly increased in all groups of soldiers returning from Afghanistan and Iraq compared to pre-deployment measures. They found that 17.2% of all military personnel reported that they had misused alcohol before deployment and that 12.5% reported that they felt that they needed to cut down on their drinking. After deployment, 24.5% of Army soldiers reported alcohol misuse and 18.2% reported the need to cut down on their drinking. In addition, 24.2% and 35.4% of the two cohorts of Marines reported the misuse of alcohol and 20.6% and 29.4% respectively reported the perceived need to cut down on their drinking, $p < .05$ (Hoge et al., 2004).

The increased rates of mental illness and alcohol use of soldiers and Marines after returning from deployment seen in this study are of great importance and can be attributed to a couple of different factors. Combat experience and frequency of contact with the enemy (being shot at, handling dead bodies, or killing an enemy combatant) was greater for all groups that were deployed to Iraq, and these soldiers and Marines subsequently had greater percentages of mental illness and alcohol abuse. Furthermore, the prevalence of PTSD significantly increased in a linear manner with the number of combat experiences. Those who were in more firefights had greater percentages of PTSD, $p < .001$, further demonstrating the relationship between PTSD and combat experience and giving one reason for a greater rise in the reported mental health problems and alcohol abuse seen in military personnel returning from Iraq compared to Afghanistan.

One reason for the greater percentage of alcohol misuse in the sample of Marines could be attributed to their ages. These groups were somewhat younger than the sample of Army soldiers, and the rate of alcohol misuse could be partly explained by the maturation of participants into older ages when consumption of alcohol is legal and dependence is more

common. In addition, although alcohol is the most common substance of abuse in veterans who seek substance abuse treatment services (Office of Applied Studies, 2000), it would have been beneficial to investigate the percentage of problematic drug use. This may have been difficult for legal reasons as these soldiers and Marines were still active military personnel at the time of these surveys. However, assessing military drug use could lead to the identification of additional veterans in need of and willing to seek treatment.

Most importantly, Hoge et al. (2004) found that at least 60% of military personnel who met the criteria for a mental illness reported that they were unlikely to seek mental health treatment because of the stigma associated with having a mental health problem. This appears to be the most prominent barrier to mental health services and can be related to self-stigma theory and structural stigma theory, also referred to as intentional and unintentional structural discrimination. Self-stigma theory posits that a person with a mental illness judges himself or herself negatively based on societal messages about mental illness and suffers from decreased self-esteem as a result (Overton & Medina, 2008). Reduced self-esteem then causes self-doubt in that individual's ability to perform tasks and handle responsibility, which further perpetuates mental illness. Furthermore, individuals who stigmatize themselves may be less likely to seek mental health treatment because seeking or being in treatment affirms their beliefs about being mentally ill (Vogel & Wade, 2009).

In the theory of structural stigma or intentional structural discrimination, an individual is intentionally discriminated against by an organization because of a mental health problem or certain characteristic. For instance, in some states the government restricts individuals with certain mental health problems from holding elective office and serving on juries (Corrigan et al., 2004). In the military, intentional discrimination once manifested itself as the infamous "Don't

ask, don't tell" policy. On the other hand, in unintentional structural discrimination the inadvertent policies of an organization limit or restrict the options of an individual with a mental health problem (Corrigan et al., 2004). At times, unintentional discrimination manifests despite the intentions of the organization. For example, the DOD appears to be committed to the destigmatization of mental health problems and the psychological welfare of its employees. However, as reported by Hoge et al. (2004), military personnel often feel that seeking treatment for a mental health problem will limit their career advancement opportunities and result in being treated differently by their leadership.

Hoge et al. (2004) found additional support for self and structural stigma theory in that individuals in their study reported they were unlikely to seek treatment for fear of being thought of as weak, fear of losing the confidence of their unit, embarrassment, and difficulty getting time off work to attend treatment. These findings suggest that stigma and discrimination are readily apparent in military culture and greatly affect soldiers' willingness to admit a mental health problem as well as their likelihood of seeking treatment. In effect, it appears that mental health is constructed as a "don't ask, don't tell" phenomenon by members of the military in a way that impedes effective treatment. These findings partly explain the difficulty in identifying and referring military personnel for mental health services at the PDHRA, where confidentiality is sometimes compromised and mental health problems are documented in computerized records.

Hoge et al. (2006) assessed the mental health problems of returning soldiers, their use of mental health services, and the utility of the post-deployment health assessment (PDHA) and found similar results to Hoge et al. (2004). They found that 19.1% of the 222,620 returning military personnel from Iraq and 11.3% of the 64,967 military personnel returning from Afghanistan screened positive for either PTSD, depression, suicidal ideation, interpersonal

conflict, or aggressive ideation (Hoge et al., 2006). Similarly, Hoge et al. found in their 2006 study that exposure to a combat situation correlated significantly with screening positive for PTSD, $p < .001$. A significant relationship was also observed between reporting mental health problems and combat exposure, $p < .001$. In a follow-up study, it was observed that more than 31% of OIF veterans sought mental health care, including substance abuse related services in the year following their deployment. This suggests a greater need for mental health and substance abuse treatment in this population than was seen in previous participants in similar overseas conflicts in such a short time after returning from combat. However, it was found that the PDHA had limited utility in predicting utilization of mental health treatment services, as less than 10% of veterans who received mental health care in the following year were referred through the PDHA screening process.

One reason for the limited utility could be that this assessment is taken directly after deployment and military personnel may not have yet felt the mental health effects of combat. In addition, they may have been experiencing significant levels of distress that they believe will eventually subside given a longer amount of time outside of combat zones. Another reason for the limited utility of this assessment could be related to the aforementioned stigma and discrimination associated with admitting mental health concerns as shown by Hoge et al. (2004).

Furthermore, the PDHA does ask questions referring to alcohol problems. However, because it is taken immediately after deployment and this variable seems less important since access to substances including alcohol in combat zones was limited, no prevalence percentage or investigation of this variable is included in the study conducted by Hoge et al. (2006). Therefore, a relationship between substance abuse problems and seeking treatment could not be explored even though the authors include substance abuse treatment utilization in the high

percentage of military personnel who utilized mental health treatment in the following year. A more thorough investigation of alcohol use in this study may have increased the predictive utility of this assessment because of the increased likelihood of individuals who abuse alcohol to develop or have a concurrent mental illness. In addition, and much like the current study, it may have been useful to include an age-related or other at-risk civilian sample in the analysis in order to compare mental health and treatment seeking percentages between these two groups. This comparison may shed light on what to expect in terms of mental health concerns and treatment seeking and enable us to determine how efficient the referral process really is.

The PDHA may help military personnel who are in urgent need of mental health care but may underestimate the need for future services and early intervention because the initial symptoms may be masked or may not be present so soon after discharge. Soldiers may feel an overwhelming sense of relief about being able to go home. In addition, military personnel usually have a couple of weeks before going home after returning from combat, and they may feel that endorsing certain items may prevent them from reuniting with their families. Furthermore, they may not present with certain symptoms of psychiatric disorders like hypervigilance or avoidance in PTSD (Bliese et al., 2007; Epstein, 1993). They may also perceive a stigma associated with admitting mental health problems while still being so closely associated with the military. Because the mental health effects of combat may have a delayed onset and these effects may be missed by initial PDHA measures given to military personnel directly after returning from combat, Bliese et al. explored how the mental health prevalence rates change when comparing the results of the initial PDHA with a re-assessment at 120 days in a sample of OIF soldiers. Bliese et al. found that rates of PTSD, depression, general distress, and anger all at least doubled in prevalence at day 120. They also found statistically significant

differences when compared with baseline PDHA measures given one week after returning from combat, $p < .05$. The only concern that did not significantly increase was relationship problems. These statistics demonstrate an underestimation in initial PDHA data and signal a greater need for mental health services, including substance abuse treatment, among returning OIF/OEF-A veterans than was originally estimated. However, Bliese et al. did not assess substance abuse related variables. Therefore, no data exist about how the abuse of substances may change after a significant time back from combat or impact other psychiatric and psychosocial concerns. In addition, and due to the hypothesized concern about admitting mental health problems directly before and after combat, it is impossible to infer how these variables have actually changed without a comparison to a civilian sample answering the same mental health screens in a de-stigmatized environment.

Like Bliese et al. (2007), Milliken et al. (2007) examined the utility of the PDHRA given to 88,235 soldiers three to six months after returning from combat zones. They specifically examined and compared the rates of mental health problems of active duty OIF veterans and National Guard and reserve OIF veterans by reviewing the responses of the first cohort of OIF veterans to complete the PDHA and PDHRA. Milliken et al. found significantly higher mental health risks on the PDHRA compared to the PDHA (35.5% vs. 17.5%; $p < .001$) for National Guard and reserve veterans and (27.1% vs. 17.0%) for active duty OIF veterans. They also found a higher rate of referral to mental health care (11.7% vs. 4.4%). Combined data from both screenings indicated that up to 42.4% of reserve soldiers needed referral or were already under care for mental health problems. Contrary to prior findings, the most significant increase demonstrated by the PDHRA was in interpersonal conflict. In the time between these assessments, reported problems with interpersonal conflicts increased from 3.5% to 14% among

active personnel and from 4.2% to 21.1% among reservists. These increases may be explained in part by some of the developing symptomatology of PTSD like hypervigilance and avoidance.

Pertinent to the current study, 11.8% of active personnel and 15.0% of reservists reported the misuse of alcohol on the PDHRA. However, only 0.2% of active personnel and 0.6% of reservists were referred to substance abuse treatment and only 16.0% of those referred to treatment actually received or utilized services, which calls into question the usefulness of the alcohol screen on the PDHRA in predicting utilization of substance abuse treatment services. Other reported rates of mental health concerns for active duty OIF veterans and National Guard and reserve veterans taking the PDHRA were as follows: PTSD 16.7% and 24.5%, suicidal ideation 0.6% and 1.5%, and interpersonal aggressive ideation 2.2% and 4.0%, respectively.

Milliken et al. (2007) also found high prevalence rates of mental health, substance abuse, and interpersonal problems in returning OIF military personnel. However, their study demonstrates the inefficiency of referring substance abusing individuals to appropriate services and further reveals a lack of knowledge about substance abusing practices and related variables in this new veteran population. With such a low percentage of individuals who report misuse of alcohol being referred to services through the PDHRA and an even lower percentage of those referred actually utilizing services, it is worth asking whether including a screen for the problematic use of illegal drugs in post-deployment assessments would be more beneficial to early intervention. The problem may be that soldiers who are taking the PDHA or the PDHRA are still active military and may be concerned about how reporting the problematic usage of illegal drugs will affect their military standing. Nevertheless, no study to date has included a question or screen for drug use. Therefore, although the PDHRA has better utility than the PDHA in predicting who will access mental health treatment services, significant utility in

identifying problematic substance users and predicting which substance users will utilize substance abuse treatment services soon after returning home from combat and military discharge has yet to be demonstrated.

In addition, the high percentage of alcohol misuse may be partly explained by the demographics of the sample. The mean age of the sample was 30.4 and younger veterans in general are a high risk group for substance use disorders (Office of Applied Studies, 2007b). Therefore, the high percentage of alcohol misuse in OIF veterans may be due to maturation into an age where drinking is more socially acceptable and common. If this is the case, it is worth comparing OIF veterans to a civilian sample to see how the percentages of alcohol abuse differ between these two groups.

Seal et al. (2007) reviewed the mental health service utilization of the newest cohort of OIF/OEF-A veterans who had just received VA health care benefits and found that younger veterans ages 18-24 were at the greatest risk of receiving dual mental health diagnoses. PTSD was the most common diagnosis, accounting for more than 52% of the total diagnoses. This prevalence percentage indicates that the most common reason OIF/OEF-A veterans seek mental health treatment is for alleviation of PTSD symptomatology. However, out of the 103,388 veterans who were seen at VA health care facilities, 4,878 (5%) received diagnoses of various substance use disorders.

Although Seal et al. (2007) took the next step from reporting concerns to actually reporting diagnoses at VA hospitals, they did not explore the relationship between these visits and the mental health screens on various post-deployment health assessments. In addition, it is noteworthy that only 5% of OIF veterans received diagnoses of substance use disorders despite results from the PDHRA that reflect a more pervasive alcohol abuse problem.

Erbes, Westermeyer, Engdahl, and Johnsen (2007) examined the mental health problems and VA service utilization of 117 veterans who had been home from combat in Iraq or Afghanistan for at least 6 months. They found that 12% of veterans scored positive for PTSD and 33% reported problematic alcohol use. In addition, 56% of individuals who screened positive for PTSD reported already utilizing mental health services, but only 18% of individuals who reported problematic alcohol use had accessed services, and only 3% had accessed chemical dependency treatment. Neither a positive screen for PTSD nor a positive screen for problematic alcohol use was significantly associated with utilizing chemical dependency treatment.

Erbes et al. (2007) found that neither a positive screen for problematic alcohol use nor PTSD was predictive of utilizing substance abuse services, but they did not assess for drug use as perhaps being the missing predictor of substance abuse service utilization. In addition, they only assessed VA records for an indication of seeking treatment. It could be that the alcohol screen is a useful predictor of seeking substance abuse treatment, but not for VA services. Hoge et al. (2004) demonstrated that up to 60% of military personnel associate a negative stigma with seeking mental health treatment, and it may be inferred that a large percentage of recently discharged veterans are employed and have private insurance or just prefer to seek treatment outside of the VA. With these results in mind, it may be beneficial to explore the screens of the PDHRA as predictors for seeking treatment within and outside of the DOD and VA systems, though this is outside the scope of the current study.

Jacobsen et al. (2008) used the Millennium Cohort Study to describe the alcohol consumption patterns and alcohol-related problems among U.S. service members before and after deployment to Iraq and Afghanistan. For U.S. service members who were deployed and had combat exposure, Jacobsen et al. reported pre-deployment heavy weekly drinking, binge

drinking, and drinking-related problem rates as 9.5%, 57.6%, and 11.0%, respectively. Post-deployment rates for heavy weekly drinking, binge drinking, and drinking related problems were reported as 9.2%, 56.0%, and 7.2%. The critical finding of this research was the new onset heavy weekly drinking, binge drinking, and drinking related problems rates that were reported as 6.0%, 26.6%, and 4.8%, respectively.

At first glance, the post-deployment and new onset rates of heavy weekly drinking, binge drinking, and alcohol-related problems are quite high and worthy of concern. However, given the stigma associated with admitting mental health problems including alcohol intake pre-deployment, the new onset rates may not be accurate. Instead, this increase could be a function of the decreased stigma in admitting these problems post-deployment when perhaps many of these veterans were on their way out of the military and deemed it more socially acceptable to admit heavy and problematic alcohol use. In addition, there were no significant changes between heavy weekly drinking, binge drinking, and alcohol-related problems pre- and post-deployment, perhaps indicating that increased alcohol use is not a direct result of combat, but is more likely to be seen in younger veterans and civilians as found by Jacobsen et al. (2008) and through the National Survey on Drug Use and Health (Office of Applied Studies, 2007b).

The results of these studies demonstrate a high and increased prevalence of PTSD, the misuse of alcohol, substance use disorders, and interpersonal problems in returning OIF and OEF-A veterans. However, the PDHA and the PDHRA seem to have limited utility in predicting who will utilize mental health treatment services, especially substance abuse treatment. A question asking about drug use and perhaps giving these assessments anonymously or offering more anonymous treatment services may increase these assessments' ability to better detect and more quickly refer individuals to treatment, given the reported stigma associated with admitting

mental health problems in the military (Hoge et al., 2004). Furthermore, much of the concern over returning OIF veterans has been about problematic alcohol use. In both cases, it may be beneficial to give the PDHRA screens to a civilian sample similar in age in order to perhaps shed a more positive light on the health status of veterans if the rates of mental health and alcohol problems are similar between these samples.

Younger Veterans in Substance Abuse Treatment

Recent research on the Treatment Episode Data Set (TEDS) has shown that the most common reason veterans seek substance abuse treatment is involvement with the judicial system (Office of Applied Studies, 2001). More than 50% of younger veterans ages 18-24 who sought substance abuse treatment did so because of legal requirements, compared to only one-third of veterans 25 and older. Veterans above the age of 25 were more likely to be referred to substance abuse treatment by a health care provider compared to younger veterans (25%-27% vs. 17%). In addition, although alcohol was the primary substance of abuse in all veterans, according to the TEDS and the National Health Interview Survey (NHIS), younger veterans ages 18-24 were more likely than their elders to abuse drugs, marijuana in particular (Ashbury, Walker, & Maholmes, 1992; Office of Applied Studies, 2005b). The primary substance of abuse was marijuana for about 23% of younger veterans ages 18-24 compared with 3%-7% of veterans above the age of 25. However, this data set is not recent enough to incorporate OIF/OEF-A veterans in their findings.

Recent results from the National Survey on Drug Use and Health (NSDUH) indicate that younger veterans ages 18-24 were much more likely than veterans 25 and older to have a substance use disorder, experience serious psychological distress, or experience a combination of these two (Office of Applied Studies, 2005b; 2007b). Veterans ages 18-25 had substance use

disorder prevalence rates of 25% compared to 11.3% for veterans ages 26-54, and 4.7% for veterans ages 55 and older. Younger veterans also had serious psychological distress yearly prevalence rates of 20.9% compared to 11.2% of veterans ages 26-54, and 4.3% of veterans ages 55 and older.

These findings indicate the importance of preparing for and treating the newest cohort of veterans, which have an increased risk and prevalence of substance abuse and psychological comorbidity. Out of the OIF/OEF-A personnel who utilized VA services between 2001 and 2005, nearly one-third were diagnosed with a mental health or psychosocial problem, and 5% were diagnosed with a substance use disorder (Seal et al., 2007).

Summary of Literature Review

In 2003, an estimated 25 million veterans lived in the United States. Although high prevalence rates of substance abuse and dependence are common among this population, only 0.8% of veterans sought treatment (Office of Applied Studies, 2005a). With preliminary data suggesting that post-deployment health assessments have limited utility in predicting who will seek mental health and substance abuse treatment, it may be beneficial to evaluate the use of a question assessing drug use on the PDRHA. Given the stigma associated with admitting mental health concerns by veterans, it may also be beneficial to investigate how administering the PDHRA anonymously and offering more anonymous treatment services will impact rates of reported mental health problems and treatment utilization. Furthermore, high percentages of alcohol and mental health problems have been reported by veterans returning from Iraq and Afghanistan on scales given through the PDHRA and other post-deployment screening assessments. However, these results have not been compared to findings on these problems among an age-related and at-risk civilian control group like college students. Doing so could

perhaps give us new insight into the mental health status of our veterans given that many are younger in age and returning from war at a time when increased alcohol use is common and mental illness is most likely to present.

CHAPTER 3

METHODOLOGY

Research Design

An exploratory research study was conducted to compare the rates of mental health concerns, alcohol use, and associated problems between military personnel who have already taken the PDHRA and college students taking these same mental health and alcohol screens (Milliken et al., 2007). College students, referred to as an age-related, at-risk civilian sample, were given the mental health screens of the PDHRA (Milliken et al., 2007). Their answers to screens assessing PTSD, depression, alcohol misuse, interpersonal conflict, suicidal ideation, and interpersonal aggressive ideation were compared to previously collected data published by Milliken et al. on OIF veterans who have taken the PDHRA. These comparisons were done using chi square analyses because of the categorical non parametric nature of the data collected. In addition, a question assessing drug use was used to identify individuals who were willing to go to treatment but did not report or have any other mental health or alcohol-related risks as shown on the PDHRA. Data were also collected that indicated whether being able to report anonymously resulted in a more accurate admission of mental health concerns and alcohol use. A determination was made whether having anonymous treatment services available in the next 90 days increased the number of individuals willing to go to treatment by comparing their

answers to questions concerning plans to attend treatment to their answers about attending treatment if services were offered anonymously.

Participants

All 10,538 students at a medium-sized Midwestern University were recruited for this study via an announcement posted on the University's Internet blackboard. The opportunity to participate in a raffle for a Wii gaming system was offered as incentive for participation. Two hundred and fifty students responded (82 men and 168 women). Out of the 250 students who responded, 37 had missing data (12 men and 25 women). Five more of the remaining 70 male participants were eliminated due to their veteran status. To make the demographics of this sample more comparable to that of the military, three out of every four female participants were eliminated. The final sample included 65 men and 35 women. The mean age of the sample was 22.5 years. In terms of race and ethnicity, 88 classified themselves as Caucasian, 7 as African American, 1 as Asian American, and 4 as "Other."

Research Methods

All students at a medium-sized Midwestern University were recruited for this study via an announcement posted on the University's Internet blackboard. The announcement contained a description of the study and a link to connect participants to an online survey. The survey did not provide the researcher with any personally identifiable information or e-mail addresses of the participants. Once a potential participant entered the survey, he or she first saw an Informed Consent statement. Potential participants who agreed to participate in the study had to click on a button labeled "I agree" that was positioned below a statement that read, "By clicking on the 'I agree' button you are acknowledging the risks, risks to confidentiality, and giving your informed consent to participate in this study. If you do not agree please exit this survey."

After the survey was online for one month, data were anonymously compiled and recorded. The data were then used to compare rates of mental health and alcohol use problems between college students and previously analyzed data on veterans who had taken the PDHRA.

Instruments

A positive PTSD screen was assessed through a governmental mental health screening instrument on the PDHRA developed by the Center for PTSD in primary care settings, the Primary Care-PTSD Screen ([PC-PTSD] Prins et al., 2004). This screen includes four questions covering the key domains of PTSD including re-experiencing trauma, numbing, avoidance, and hyper-arousal. Endorsement of at least two of the four items generates a mental health referral and is associated with a diagnostic accuracy of 0.82, sensitivity of 0.93, and specificity of 0.79. For the purpose of this study, the percentage of individuals who endorsed at least two items on the PC-PTSD screen were compared to the 9,424 (or 16.7%) active duty OIF veterans and the 7,815 (24.5%) OIF National Guard and reserve veterans who also endorsed two or more items on their PDHRA in Milliken et al.'s (2007) study.

A positive screen for alcohol misuse was assessed by the two-item conjoint screen for alcohol and other drug problems (TICS). The two questions asked were, "In the past month, did you use more alcohol than intended?" and "In the past month have you felt like you wanted or needed to cut down on your drinking?" The two questions are associated with a diagnostic sensitivity to detect substance use disorders of 70.1% and 56.3%, and a specificity of 80.9% and 91.7%, respectively (Brown, Leonard, Saunders, & Papasouliotis, 2001). Answering "yes" to both questions generates a mental health referral and is associated with a sensitivity of 73% and a specificity of 86% (Warner, Appenzeller, & Grieger, 2007). For the purpose of this study, the percentage of individuals in this sample who endorsed at least one item was compared to the

6,669 (11.8%) active duty OIF veterans and the 4,787 (15.0%) National Guard and reserve veterans who also endorsed one or more items on the PDHRA (Milliken et al., 2007).

The Patient Health Questionnaire 2 (PHQ-2) is a two-item screen for depression. Respondents are asked questions about having “little interest or pleasure in doing things” and “feeling down, depressed and hopeless.” Answering at least one of these questions positively and feeling this way for at least “more than half of the days” generates a mental health referral and is associated with a sensitivity of 73% and a specificity of 86% (Kroenke, Spitzer, & Williams, 2003). For the purpose of this study, the percentage of individuals who endorsed at least one of these items and marked a specifier of at least “more than half of the days” was compared to the 5,831 (10.3%) active duty OIF veterans and 4,133 (13.0%) of National Guard and reserve veterans who also endorsed at least one item as “more than half of the days” on their PHDRA.

Interpersonal conflict was assessed using the question, “In the past 3 to 6 months, have you had serious conflicts with your spouse, family members, close friends, or at work that continue to cause you worry or concern?” A response of “yes” generates a mental health referral and is associated with a sensitivity of 68% and a specificity of 81% (Warner et al., 2007). For the purpose of this study, all individuals who answered “yes” to this question were compared to the 7,893 (14%) active duty OIF veterans and 6,724 (21.1%) National Guard and reserve OIF veterans who also answered “yes” on the PDHRA.

Interpersonal aggressive ideation was assessed using the question, “In the past three to six months, have you had any thoughts or concerns that you might hurt or lose control with someone?” For the purpose of this study, all individuals who answered “yes” to this question

were compared to the 1,231 (2.2%) active duty OIF veterans and the 1,285 (4.0%) National Guard and reserve OIF veterans who also answered “yes” on the PDHRA.

Suicidal ideation was assessed using the question, “Over the past month, have you been bothered by thoughts that you would be better off dead or of hurting yourself in some way?” For the purpose of this study, all individuals who answered “yes” to this question were compared to the 353 (0.3%) active duty OIF veterans and the 463 (1.5%) National Guard and reserve OIF veterans who also answered “yes” on their PDHRA.

An individual was considered a mental health risk if he or she had a positive response to at least one of the PHQ-2 depression items, endorsed at least two items on the PC-PTSD screen, or endorsed suicidal ideation, interpersonal conflict, or aggressive interpersonal ideation. The percentage of those who were considered a mental health risk was then compared to the 15,264 (27.1%) active duty OIF veterans and the 11,333 (35.5%) National Guard and reserve OIF veterans who were considered a mental health risk after taking the PDHRA.

Other questions asked in the survey are included in Appendix B and focused on age, year in school, ethnicity, recent drug use, and likelihood of seeking treatment.

Statistical Analysis

In order to address the research questions in determining if mental health risk rates significantly differed between OIF veterans and an age-related civilian sample, a chi-square test for independence was used. A chi-square test for independence assesses whether paired observations on two variables, expressed in a contingency table, are independent of each other. In this case, the chi-square was used to test whether the frequency of mental health risk rates is independent of being an active duty OIF veteran, a National Guard and reserve OIF veteran, or a participant in an age-related civilian sample (Aron & Aron, 1999). Five more chi-square tests

for independence were also conducted to see if the frequency of endorsing suicidal ideation, interpersonal conflict, interpersonal aggressive ideation, depression, and PTSD significantly differed between active duty OIF veterans, National Guard and reserve OIF veterans, and an age-related civilian sample. The alpha level was set at .05 for all chi-square tests. However, and because of the multiple comparisons used in this analysis, significance was also reported after Bonferroni's correction in which the total alpha percentage is divided by the number of comparisons. Consequently, each comparison is made at a more stringent alpha level to further reduce the probability of making a Type I error (Aron & Aron, 1999). The alpha level after Bonferroni's correction was set at .008.

In order to address the research question in determining if alcohol misuse frequencies significantly differ between active duty OIF veterans, National Guard and reserve veterans, and an age-related civilian sample, a chi-square test for independence was used. Significance is reported at a .05 alpha level.

In order to address the research question in determining if an additional question assessing drug use will identify individuals who are willing to go to mental health or substance abuse treatment who would otherwise have not been recognized using the PDHRA screens, descriptive statistics were used. Specifically, the number of individuals who endorsed using illegal drugs who did not have a positive alcohol screen or were not recognized as a mental health risk was reported. Out of those remaining individuals, those who endorsed planning to seek mental health or substance abuse treatment within the next 90 days was reported.

In order to address the research question in determining if being able to report mental health and substance abuse problems over the Internet and anonymously increased honesty and accuracy in reporting, descriptive statistics were used. The question, "Were you more

honest/accurate, less honest/accurate or the same honest/accurate on this anonymous Internet survey as you would have been in an in-person interview in reporting alcohol use and mental health problems?” was used. Then, the percentage of participants who answered “more honest/accurate,” was reported.

In order to address the last research question in determining if having anonymous treatment services available increased the likelihood that individuals with mental health or substance abuse problems would attend treatment, descriptive statistics were used. Specifically, the number of individuals who indicated planning to seek mental health and substance abuse treatment in the next 90 days was reported. Then, the number of individuals who would only seek mental health or substance abuse treatment if services were offered in an anonymous fashion was reported.

CHAPTER 4

RESULTS

The college students sampled in this study reported similar and at times significantly more mental health problems on their PDHRA than the active duty and reserve and National Guard veterans reported as published by Milliken et al. (2007). For instance, college students reported higher rates of PTSD than active soldiers (24.0% vs. 16.7%, $p = .051$) and only slightly lower rates of PTSD than reserve and National Guard veterans (24.5%, $p = .906$). College students also reported higher rates of depression than active soldiers (12.0% vs. 10.3%, $p = .588$) and only slightly lower rates than reserve and National Guard veterans (13.0%, $p = .775$), although rates did not significantly differ between groups. College students reported significantly higher rates of interpersonal aggressive ideation than both active soldiers (9.0% vs. 2.2%, $p < .001$) and reserve and National Guard veterans (4.0%, $p = .012$). They also reported significantly higher rates of suicidal ideation than both active soldiers (9.0% vs. .06%, $p < .001$) and reserve and National Guard veterans (1.5%, $p < .001$). College students further reported significantly higher rates of interpersonal conflict than active soldiers (22.0% vs. 14.0%, $p = .021$) and slightly higher rates than reserve and National Guard veterans (21.1%, $p = .823$), although not statistically different. In addition, students were classified as mental health risks at a significantly higher rate than active soldiers (43.0% vs. 27.1%, $p < .001$) and at a higher but not statistically different rate than reserve and National Guard veterans (35.5%, $p = .122$). Lastly,

college students reported significantly higher rates of alcohol abuse than active soldiers (20% vs. 11.8%, $p = .012$) and higher rates than reserve or National Guard veterans (15.0%, $p = .164$), although not statistically different from one another. A summary of this data including odds ratios, measuring the strength of the associations, can be found in Table 1. Data concerning active duty, reserve, and National Guard veterans were taken from Milliken et al. (2007).

Table 1

PDHRA Mental Health Screen Comparisons.

Group		College Students	Active Duty Veterans	National Guard and Reserve Veterans
	<i>N</i>	100	56,350	31,885
PC-PTSD				
	Positive Cases	24	9,424	7,815
	Percentage	24	16.7	24.5
	Pearson's Chi Square		3.792	0.014
	Odds Ratio		0.636	1.028
PHQ Depression				
	Positive Cases	12	5,831	4,133
	Percentage	12	10.3	13.0
	Pearson's Chi Square		0.294	0.082
	Odds Ratio		0.846	1.092
Interpersonal Aggressive Ideation				
	Positive Cases	9	1,231	1,285
	Percentage	9	2.2	4.0
	Pearson's Chi Square		21.583**	6.327*
	Odds Ratio		0.226	0.425
Suicidal Ideation				
	Positive Cases	9	353	463
	Percentage	9	0.6	1.5
	Pearson's Chi Square		109.850**	39.062**
	Odds Ratio		0.064	0.149

(Table 1 Continues)

(Table 1 Continued)

Interpersonal Conflict			
Positive Cases	22	7,893	6,724
Percentage	22	14.0	21.1
Pearson's Chi Square		5.290*	0.05
Odds Ratio		0.578	0.947
Mental Health Risk			
Positive Cases	43	15,264	11,333
Percentage	43	27.1	35.5
Pearson's Chi Square		12.789**	2.396
Odds Ratio		0.429	0.732
Two-Item Conjoint Screen for Alcohol			
Positive cases	20	6,669	4,787
Percentage	20	11.8	15.0
Pearson's Chi Square		6.371*	1.941
Odds Ratio		0.537	0.707

* is significant at $p < .05$

** is significant at $p < .008$

In addition, 10 out of the 100 students sampled in this study reported recent illegal drug use. Of those ten students, three were not classified as a positive alcohol case or a mental health risk. Out of those three students, only one indicated that he or she planned to seek treatment within the next 90 days. This participant did not indicate a desire to seek substance abuse services, but did indicate a desire to seek mental health services.

Furthermore, seven students reported that they were planning to seek mental health treatment within the next 90 days. No students reported planning to seek treatment for alcohol or drug problems within the next 90 days. However, when later asked if they would seek treatment under anonymous conditions, eight additional students reported that would seek mental health treatment and one reported that he or she would seek alcohol or drug treatment.

Twenty-three of the 100 students sampled in this study reported that they were more honest/accurate because of the anonymity of this Internet survey than they would have been in an in-person interview in reporting alcohol use and mental health problems. The remaining 77 participants reported that their honesty/accuracy was unchanged by the anonymity of the Internet survey.

CHAPTER 5

DISCUSSION

The purpose of this study was to compare rates of mental health problems, including depression, PTSD, suicidal ideation, interpersonal conflict, interpersonal aggressive ideation, and alcohol misuse, between the results of OIF veterans' PDHRA screens as reported by Milliken et al. (2007) and an age-related civilian sample. Through these comparisons it was believed that a more accurate depiction of the health status of veterans would emerge, offering a reason for the inconsistent treatment-seeking percentages of those veterans with mental health risks. It was hypothesized that PTSD would be the only mental health concern reported at a significantly higher rate in OIF veterans when compared to college students because of veterans' combat experience overseas. However, results indicate that neither active duty nor reserve and National Guard veterans reported any mental health concern at a significantly higher rate than college students, including PTSD. In contrast, college students reported higher rates of PTSD and depression and statistically significantly higher rates of interpersonal conflict, suicidal ideation, interpersonal aggressive ideation, alcohol misuse, and classification as a mental health risk in comparison to active duty OIF veterans. Furthermore, college students reported similar rates of PTSD, depression, interpersonal conflict, and alcohol misuse and statistically significantly higher rates of suicidal ideation and interpersonally aggressive ideation when compared to reserve and National Guard OIF veterans.

A few factors contributed to these unexpected results. First and most likely, the stigma associated with reporting mental health problems in the military played a large role (Hoge et al., 2004). Because of the anonymous nature of this survey, the college students taking the PDHRA had no such stigma, concern for future employment, or apprehension about how they may be classified by their peers or superiors. Consequently, these results give an accurate view of how this group would score on the mental health screens of the PDHRA. By contrast, as reported by Hoge et al., a large number of individuals in the military are very concerned with how they may be perceived and treated by their peers and superior officers after admitting mental health problems. In addition, they believe that their problems do not remain confidential. Unfortunately, this may mean that because of stigma and perceived intentional or unintentional structural discrimination, the number of individuals with mental health problems in the military is actually being underreported and underestimated, indicating that those with mental health problems are not coming forward for needed assistance. Support for this assertion is demonstrated by the similar and at times much greater rates of symptoms of mental illness reported by the college student sample and the high percentages of perceived stigma as reported by Hoge et al. Related to the theory of intentional and unintentional structural discrimination, it can be inferred that veterans will conceal or in this case underreport mental health problems when they perceive inadvertent or intentional consequences of their help-seeking behavior (Corrigan et al., 2004). This conclusion is bolstered by the result that college students were at a minimum of six times more likely than active duty and reserve and National Guard veterans to admit suicidal ideation and interpersonally aggressive ideation. It appears likely that these two mental health concerns would result in some form of permanent documentation, action, demotion, or other form of intentional discrimination, given the danger associated with carrying

a weapon while experiencing these symptoms. Because of the miniscule percentage of military personnel reporting these specific symptoms, it is likely that many more veterans suffer from suicidal ideation and thoughts of hurting others, but who may have been hesitant to report it in the PDHRA setting. Due to perceived stigma and discrimination, these individuals are likely now going without treatment. This conclusion is further supported by the similar rates of depression reported by college students and OIF veterans, as this mental health concern may be more appropriate to express given the veterans' participation in combat as well as the frequency and perceived normalcy of depression as a mental health problem.

However, even the similar rate of symptoms of PTSD found in college students when compared with OIF veterans is a signal for concern and further relates to underreporting. Theoretically, the college students sampled could have been subjected to events likely to cause PTSD. However, since they had no combat or war experience, these theorized events would then only serve as a baseline as what to expect before military personnel go overseas and should not be similar and at times higher than OIF veterans.

Another, possibly less likely, reason for the similar and at times lower rates of mental health problems reported by OIF veterans may be the delay of symptom onset due to the elation and joy of being home after being overseas. It could be that after OIF veterans return home from combat they are so happy to be out of a combat situation that they can easily minimize, ignore, or not even experience psychological problems like PTSD, which may take time to manifest (Andrews, Brewin, Philpott, & Stewart, 2007). However, because college students had such higher rates of mental health problems and the military personnel had three to six months after deployment to take this assessment, this seems unlikely. In addition, the rate of suicidal ideation

found in OIF veterans is significantly below previously measured rates for a population close in age (Garlow et al., 2007; Rudd, 1989).

Although these results seem to indicate an underestimation of the mental health status of veterans and suggest a more pathological population, there are ways to increase the sensitivity of this assessment and better treat veterans. One way is to offer an additional mental health assessment in which these same mental health screens are given, but at a different time and under anonymous conditions. Under these conditions, those who do perceive a stigma in reporting their problems can admit concern without being subjected to discrimination. These individuals will still be able to benefit from consultation with mental health professionals and can still be given information regarding treatment and referral.

Another purpose of this study was to investigate whether the anonymous nature of this assessment increased the honesty or accuracy of participants' reporting mental health concerns. In this case, it was hypothesized that over half of the sample would report that the anonymous nature of the survey increased their accuracy or honesty in reporting. Only 23% reported that they were more honest or accurate because of the anonymity. However, only 43% endorsed a mental health problem, perhaps indicating that the remaining 57% had no reason to be more honest or accurate because they had no mental health concerns to report. Alternatively, this means that over half of the participants that endorsed a mental health problem were more honest in their reporting because of the anonymity and may not have endorsed as many or any mental health problems without this condition present. In this case, it appears that the anonymity of this survey played a large role in increasing reporting accuracy and possibly reducing the stigma associated with admitting mental health problems. It also appears to be a practice that could be easily adopted for the PDHRA.

A related purpose of this research was to discover whether having anonymous treatment services available would increase the likelihood that individuals who were classified as a mental health or alcohol risk would seek mental health or substance abuse treatment. It was hypothesized that because stigma in seeking treatment would be reduced by anonymity, twice as many participants with a mental health or alcohol risk would report willingness to seek anonymous treatment than had previously planned on attending treatment services within the next 90 days. In this case, the hypothesis was supported; twice as many participants reported that they would seek mental health treatment services if offered anonymously, again indicating that stigma often prevents individuals from seeking care. However, no students reported a willingness to seek substance abuse treatment within the next 90 days. In addition, only one student indicated a willingness to seek anonymous substance abuse treatment, even though college students were almost twice as likely to screen positive for alcohol abuse, further revealing the difficulty in getting a substance abusing population into treatment as shown through the PDHRA (Milliken et al., 2007). Research suggests that younger adults most often seek substance abuse services because of judicial requirements and this finding may explain why likelihood of seeking treatment does not improve even when opportunities for stigma and discrimination are reduced (Office of Applied Studies, 2001).

Another way to increase the utility and sensitivity of the PDHRA or to increase the number of military personnel who seek mental health treatment is to offer and establish additional opportunities for anonymous services like some offered through various veterans' hospitals and Vet Centers. Given the stigma associated with seeking any form of mental health treatment while in the military, the government may find it beneficial to contract the services of area mental health organizations in order to offer free services to veterans who do not fully trust

the DOD and VA systems. In addition, it is likely that military personnel are already seeking treatment outside government facilities to avoid stigma and discrimination.

The last purpose of this study was to determine if an additional question assessing drug use could identify a clinically significant number of individuals willing to seek mental health or substance abuse treatment who would not otherwise have been recognized as needing a referral through the PDHRA. Only one individual out of a sample of 100 who reported recent drug use and was not recognized through the PDHRA as needing a referral indicated a willingness to seek treatment. In addition, this person indicated a willingness to seek mental health treatment but not substance abuse treatment. However, and assuming that this one person is not an anomaly, when screening 100,000 individuals (which is close to the number of military personnel currently overseas), this one person becomes 1,000 unidentified people in need of a referral and willing to seek mental health treatment. Therefore, although the addition of the drug use screen did not statistically improve the accuracy of the PDHRA, it showed clinical significance and viability for future use. It also appears that this question could be easily incorporated into future post-deployment mental health screenings.

Furthermore, it was previously mentioned that military personnel are likely to seek treatment outside of the DOD or VA if they believe they may be stigmatized or discriminated against. Research conducted on the PDHA and PDHRA has revealed a weak and inconsistent relationship between admission of a mental health problem on post-deployment mental health assessments and treatment seeking within the VA and DOD (Hoge et al., 2006; Milliken et al., 2007). Therefore, future researchers should focus on measuring the relationship between military personnel who admit mental health problems on the PDHRA and their likelihood of seeking treatment outside of the VA or DOD. Such information may prove to be the missing

variable concerning the predictive validity of the PDHRA. In other words, the PDHRA could still be a useful instrument, but its predictive accuracy may be underestimated because researchers have yet to investigate veterans who seek private mental health treatment. Data concerning reasons for seeking treatment outside of the VA and DOD could also be collected from these individuals, which would then be useful in determining new strategies to reduce stigma and prevent future occurrences of unintentional discrimination.

It may also be beneficial to qualitatively investigate instances of perceived stigma and intentional and unintentional discrimination in military personnel with mental health problems. Such research would reveal specific instances in which stigma and discrimination are experienced. Descriptive information of this nature could then inform mental health workers as to how to better reduce these occurrences. The personal nature of these accounts may also help persuade policy makers to quickly adopt stigma reducing practices. In addition, interviewing military personnel higher in command who have effectively led and encouraged mental health treatment seeking in those under their command may also lead to identifying strategies concerning more effective leadership. Information of this nature could then be turned into mandatory education for superior officers.

The current study only provides evidence that military personnel are underreporting mental health problems on the PDHRA by comparing them to a demographically matched college student sample. Unfortunately, these data cannot be used to predict what the actual rates of mental health problems are or the degree of underreporting. However, because combat has been shown to increase psychiatric symptoms, it is easy to infer that the prevalence rate of mental health problems in military personnel is higher than was found in the sample of college students (Center for Disease Control Vietnam Experience Study Group, 1988; Helzer et al, 1987;

Iowa Persian Gulf War Study Group, 1997; Kulka et al., 1990; Roszell et al., 1991). Therefore, future research could also focus on anonymously administering the PDHRA to military personnel after they take the original PDHRA. A within-subjects design of this nature would provide more accurate findings concerning the degree of underreporting and the actual prevalence of mental health problems within military personnel.

In addition, preliminary research has shown that veterans, especially those under the age of 26, are at an increased risk to develop problematic drinking habits and drink significantly more than they did pre-deployment (Hoge et al., 2004; Jacobsen et al., 2008; Milliken et al., 2007). However, no researcher to date has thoroughly examined any variables related to drug use in this new cohort of combat veterans. Future researchers should focus on variables related to drug of choice, reasons for using, treatment seeking, military adjustment problems, and co-morbid disorders. Data concerning these variables could inform treatment for the largest group of combat veterans since the Vietnam War.

Lastly, it has been theorized that because of the deep-seated nature of prejudice, new policy is unlikely to have any immediate impact on attitude (Allport, 1954). In other words, despite military policy change concerning intentional discrimination against someone with a mental health problem, prejudiced attitudes are likely to persist and continue to result in intentional and unintentional consequences such as loss of promotion and differential treatment for individuals who express mental health problems and seek treatment. This will be especially true when the prejudiced individuals are in leadership positions. Corrigan and Penn (1999) suggest protest, education, and contact as a means to combat the stigma of mental illness. Therefore, mental health professionals need to continue to strengthen their efforts at educating the public about the process of psychotherapy and the common psychological effects of combat.

As previously mentioned, educational interventions may be even more effective when they are targeted at those in command as these individuals are more likely to control outcomes for those with mental health problems. Concerning contact, it can be optimistically theorized that because of the high percentages of military personnel with mental health problems seen in OIF/OEF-A, mental illness in the military has already begun a normalizing process, naturally decreasing stigma.

In sum, results from this study suggest that there may be a higher percentage of mental health problems in military personnel than previously reported and measured by the PDHRA (Milliken et al, 2007). Results also imply that the stigma associated with admitting mental health problems is directly related to the difficulty identifying, referring, and treating those in need of care. With modern advances in psychotherapy and pharmacotherapy, mental health professionals can now effectively treat many of the mental health problems that are a result of war (Bisson et al., 2007; Friedman, Donnelly, & Mellman, 2003). However, therapy is only effective when it reaches those in need.

Limitations

There were many limitations to this study. First, this study was conducted using a small sample of college students from one public university in the Midwest. Therefore, the results may have limited generalizability and predictive validity to a larger and more diverse civilian sample. In addition, because of the quasi-experimental nature of this research, random assignment was not possible. Instead, convenience sampling was used, sampling all college students who responded to the Blackboard announcement. Because the sample was recruited this way, a large percentage of female participants had to be randomly excluded to more accurately match the demographics of the U.S. military. In addition, the mean age of the sample was 22.5, or a little

less than 8 years younger than the sample of military personnel to whom they were compared. The younger mean age of the sample may have skewed some of the results concerning alcohol misuse, as younger individuals in general are at an increased risk for alcohol abuse (Office of Applied Studies, 2007a).

Furthermore, the PDHRA is intended to be taken by veterans returning from overseas conflict, and the civilian sample has had no such combat experience. The purpose of this study was to factor out what percentages of mental health and substance abuse problems naturally exist among a population in a similar age range, which justifies the use of these screens on this sample. Nevertheless, slight wording changes had to be made to some of the questions. For example, on questions assessing mental health symptoms, the term “Since your deployment” was often replaced with the term “In the last 3-6 months.” Therefore, the college student sample may have had a greater window to experience and report a mental health symptom or stressor, since the PDHRA is meant to be given to veterans anywhere from 90-180 days post deployment.

Moreover, the survey was taken anonymously over the Internet, which may decrease stigma in reporting mental health and substance abuse problems and self-reportedly increased accuracy in reporting. Veterans taking the PDHRA had no such luxury, so the rates of mental health and substance abuse problems seen in this study may be more accurate but inflated, given that reporting anonymously on the Internet has been previously shown to increase accuracy in reporting illegal behaviors (Turner et al., 1998). This was also not a longitudinal study assessing actual treatment seeking. Instead, individuals’ self-report of willingness to attend future mental health or substance abuse treatment was assessed. Therefore, although some individuals reported willingness to attend treatment in the next 90 days, it is unknown if they ever attended.

Much of the concern for OIF veterans has been associated with their increased rates of mental illness and substance abuse after combat. In these cases, rates of mental illness and substance abuse have been shown to be an effect of combat exposure (Jacobsen, 2008; Milliken, 2007). This civilian sample has not had any combat experience, so their mental health or substance abuse problems will not be related to the experience of war, but will instead only serve as a comparison to what may be realistically expected in an age-matched sample of individuals.

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APPENDIX A: INFORMED CONSENT

CONSENT TO PARTICIPATE IN RESEARCH

An Exploration into Increasing the Efficiency and Accuracy of the Military's Mental Health Post-Deployment Screening Strategies

You are being invited to be part of a study led by Daniel Fass, M.Ed., and Michael Shuff, Ph.D., from the Counseling Psychology Department at Indiana State University. Please read all the information below and then decide whether you want to be in the study.

The purpose of this study is to compare rates of mental health and substance abuse problems between college students and Operation Iraqi Freedom (OIF) Veterans. You are being invited to be in the study because college students are similar in age to OIF veterans. In this survey, we will ask questions about post-traumatic stress disorder, depression, suicidal thoughts, aggressive thoughts, substance abuse, and mental health treatment.

This survey should take less than eight minutes. After completing such surveys, some respondents may feel sad, angry, or concerned about some aspect of their behavior or background. Because this survey may cause emotional responses, below and after the survey is completed you will find the contact numbers of agencies and people who can help you deal with any problems you may be experiencing. It is quite normal to have distressing feelings sometimes, and these agencies have qualified individuals who can assist you with a variety of life problems.

We expect that any risks, discomforts, or inconveniences will be minor and not likely to happen. We cannot guarantee anonymity, however, we will do our best to protect your anonymity and confidentiality by providing a secure site. However, we cannot guarantee that data may not be interrupted in transmission because this is an Internet survey. You will receive no future e-mail or contact from us as we will not collect any personally identifying information from you. We also encourage you to delete the ISU e-mail about this survey and to use a public computer to complete this if possible.

Through your participation, we eventually hope to gain a better understanding of the mental health of our veterans and improve the way we screen for mental health problems in the military. If you have any further questions about your rights as a participant you may call 812-237-8217 or contact irb@indstate.edu. If you have questions, concerns, or comments about the study, the informed consent process, or your rights as a research subject, you may contact Daniel F. Fass, at 480-236-5674 or by e-mail at dfass@indstate.edu, or the faculty advisor of this project, Dr. Michael Shuff, Department of Communication Disorders and Counseling, School, and Educational Psychology, Indiana State University at 812-237-3910 or by e-mail at michaelshuff@indstate.edu.

Your participation in this study is voluntary. You can choose not to take part in this study, and once started you may quit at any time or choose to omit any question. You are not permitted to take part in this study if you are less than 18 years of age.

By clicking on the “I agree” button you are acknowledging the risks, risks to confidentiality, and giving your informed consent to participate in this study. If you do not agree, please exit this survey.

Thank you,

Daniel Fass
Ph.D. Candidate, Counseling Psychology
480-236-5674
dfass@indstate.edu

If this survey causes you emotional discomfort, please contact:

Student Counseling Center, Lower Level, Student Services Building, 567 North 5th Street,
Indiana State University at 812-237-3939

Family Service Association, 619 Cherry Street, Terre Haute, IN 47807 at 812-232-4349

The Hamilton Center, Access Center, 620 Eighth Avenue, Terre Haute, IN 47804 at (812) 231-
8200

Vigo County Lifeline, a 24 hour crisis line at 812-238-2620 or 812-235-8333

OR

Daniel Fass at 480-236-5674

APPENDIX B: INSTRUMENTS USED

Additional Questions

Demographics

1. How old are you?
2. What year in school are you?
3. What is your ethnicity?
4. What is your gender?

Additional Questions

5. In the past 3-6 months have you used any drugs, including prescription medication not prescribed to you?
6. Do you plan on seeking treatment for any of your mental health concerns, but not substance abuse concerns within the next 90 days?
7. Do you plan on seeking treatment for any alcohol or drug-related concerns within the next 90 days?
8. Were you more honest/accurate, less honest/accurate or the same honest/accurate on this anonymous Internet survey as you would have been in an in-person interview in reporting alcohol use and mental health problems?
9. If offered in the next 90 days in an anonymous fashion without record of your name, would you seek treatment to reduce your alcohol or drug use?
10. If offered in the next 90 days in an anonymous fashion without record of your name, would you seek treatment for a mental health problem?
11. Are you a veteran?

If this survey causes you emotional discomfort, please contact:

Student Counseling Center, Lower Level, Student Services Building, 567 North 5th Street, Indiana State University at 812-237-3939

Family Service Association, 619 Cherry Street, Terre Haute, IN 47807 at 812-232-4349

The Hamilton Center, Access Center, 620 Eighth Avenue, Terre Haute, IN 47804 at (812) 231-8200

Vigo County Lifeline, a 24 hour crisis line at 812-238-2620 or 812-235-8333

OR

Daniel Fass at 480-236-5674

If you are interested in being included in a raffle for a Wii gaming system please email dfass3@hotmail.com.

APPENDIX C: PUBLICATION READY ARTICLE

Running head: SUICIDAL AND HOMICIDAL IDEATION IN OIF VETERANS

Problems in Measuring Suicidal and Homicidal Ideation in OIF Veterans: Uncovering True

Prevalence Rates

by

Daniel Fass M.Ed.

Debra Leggett Ph.D.

Kevin Bolinsky Ph.D.

Indiana State University

Abstract

The authors investigated symptoms of suicidal ideation and interpersonal aggressive ideation reported by college students and compared them with previously existing data on active duty, reserve, and National Guard Operation Iraqi Freedom veterans. Subjects completed questions asked on the mental health portion of the Post-Deployment Health Re-Assessment as taken by OIF veterans three to six months after deployment. Subjects were also asked about how anonymity affected their reporting accuracy. Results indicate significantly higher rates of suicidal ideation and interpersonal aggressive ideation among college students and perhaps highlight the problems associated with post-deployment mental health screenings, including stigma associated with reporting and seeking mental health treatment while in the military. These results indicate the need for anonymous post-deployment screening procedures as well as more anonymous treatment options for military personnel.

On March 20, 2003, the United States launched Operation Iraqi Freedom (OIF), the largest military ground operation since the Vietnam War. Previous research conducted on soldiers returning from similar overseas conflicts has shown a rise in psychiatric symptomatology (Center for Disease Control Vietnam Experience Study Group, 1988; Helzer, Lee, Robins, & McEvoy, 1987; Iowa Persian Gulf War Study Group, 1997; Kulka et al., 1990; Roszell, McFall, & Malas, 1991). Preliminary research conducted on OIF veterans has also shown a significant increase in PTSD, interpersonal conflict, and alcohol abuse and younger veterans have been found to be at the greatest mental health and alcohol-related risk (Bliese, Wright, Adler, Thomas, & Hoge, 2007; Hoge, Auchterlonie, & Milliken, 2006; Hoge et al., 2004; Jacobsen et al., 2008; Milliken, Auchterlonie, & Hoge, 2007). However, the mental health effects of this active operation and Operation Enduring Freedom-Afghanistan (OEF-A), another recent combat operation, are yet to be fully and properly explored. In particular, there is a paucity of research examining the true rates of suicidal and homicidal ideation among OIF veterans.

Much of the mental health research conducted on military personnel returning from Iraq and Afghanistan has been done using the Post-Deployment Health Assessment (PDHA) and Post-Deployment Health Re-Assessment (PDHRA), which are given to veterans immediately after returning home from combat and again three to six months thereafter (Hoge et al., 2006; Milliken et al., 2007). The primary purposes of the PDHA and PDHRA are to assess veterans' physical and mental health after deployment and to assist military healthcare providers in identifying health problems and providing present and future medical care (Bliese, Wright, Adler, Hoge, & Prayner, 2005). Because of the emergence of technology in the twenty-first century, this is the first time it is possible to survey and compile data on the entire population of

veterans returning from combat. However, numerous problems have been associated with the use of these post-deployment screening procedures. Most importantly, stigma associated with admitting mental health concerns and lack of anonymity in reporting have led to the inefficiency of these assessments in recognizing who is in need of treatment and who will actually seek treatment because of a mental health problem (Hoge et al., 2004; Jacobsen et al., 2008; Milliken et al., 2007). In addition, the PDHA and PDHRA have been used without comparison to an age-related or mental health at-risk civilian control group like college students, possibly contributing to an inaccurate depiction of the number of military personnel with mental health problems.

For instance, Hoge et al., (2004) found that at least 60% of military personnel who met the criteria for a mental illness reported that they were unlikely to seek mental health treatment because of the stigma associated with having a mental health problem. Milliken et al. (2007) reported that 74% of active soldiers who accessed mental health care in the 30 days after taking the PDHRA had not been identified or referred through this process. In addition, only 41.8% and 61%, respectively, of those referred through the PDHA and PDHRA accessed mental health care 90 days after their referral, calling into question the ability of the PDHRA's mental health screens to detect those in need of treatment and make appropriate and timely referrals. Most importantly, Milliken et al., reported rates of suicidal ideation and interpersonal aggressive ideation in active duty OIF veterans as low as 0.6% and 2.2%, respectively, which are well below the national average for a population close in mean age (Garlow et al., 2007; Rudd, 1989). These prevalence rates also appear surprisingly low given the amount of trauma witnessed and experienced, and the significant correlation between trauma and depressive symptomology (Hoge et al., 2004).

Early evidence demonstrates a high prevalence of mental health concerns and mental health treatment utilization among OIF/OEF-A veterans (Hoge et al., 2004; Hoge et al., 2006; Milliken et al., 2007; Seal, Bertenal, Miner, Sen, & Marmar, 2007). However, for the purposes of this study, it is hypothesized that the prevalence rates of suicidal ideation and interpersonal aggressive ideation in active duty and reserve and National Guard OIF veterans are underreported, perhaps due to the stigma and anticipated repercussions associated with admitting these problems. Consequently, veterans with symptoms of suicidal and homicidal ideation are going unrecognized and without a timely referral.

The primary purpose of this study is to compare rates of interpersonal aggressive ideation and suicidal ideation between the results of OIF veterans' PDHRA screens as reported by Milliken et al. (2007) and a sample of college students. Another purpose of this study is to assess whether the ability to admit these concerns anonymously will increase honesty or accuracy in reporting. Through these comparisons, a more accurate depiction of the health status of our veterans may be given, the dire need for mental health treatment can be highlighted, and the importance of the stigma associated with admitting serious mental health problems on the PDHRA will be acknowledged.

Methodology

Ethical Considerations

This study was conducted under the purview of the Institutional Review Board of Indiana State University.

Description of Participants

All 10,538 students at a small Midwestern University were recruited for this study via an announcement posted on the University's Internet blackboard. The opportunity to participate in

a raffle for a Wii gaming system was offered as incentive for participation. Two hundred and fifty students responded (82 men and 168 women). Out of these 250 students, 37 were excluded due to missing data (12 men and 25 women). Five more of the remaining 70 male participants were eliminated due to their veteran status. Then, to make the demographics of this sample more comparable to the demographics of the U.S. military, three out of every four female participants were randomly eliminated. The final sample included 65 men and 35 women. The mean age of the sample was 22.5 years. Concerning race and ethnicity, 88 classified themselves as Caucasian, 7 as African American, 1 as Asian American, and 4 as "Other".

Assessment Instruments

Aggressive interpersonal ideation was assessed using the question, "In the past three to six months, have you had any thoughts or concerns that you might hurt or lose control with someone?" For the purpose of this study, all individuals who answered "yes" to this question were compared to the 1,231 (2.2%) active duty OIF veterans and the 1,285 (4.0%) National Guard and reserve OIF veterans who also answered "yes" on the PDHRA in Milliken et al.'s (2007) study.

Suicidal ideation was assessed using the question, "Over the past month, have you been bothered by thoughts that you would be better off dead or of hurting yourself in some way?" For the purpose of this study, all individuals who answered "yes" to this question were compared to the 353 (0.3%) active duty OIF veterans and the 463 (1.5%) National Guard and reserve OIF veterans who also answered "yes" on their PDHRA (Milliken et al., 2007).

To assess whether being able to report these mental health concerns anonymously increased accuracy in reporting, subjects were asked, "Were you more honest/accurate, less

honest/accurate or the same honest/accurate on this anonymous Internet survey as you would have been in an in-person interview in reporting alcohol use and mental health problems?”

Procedures

All students at a small Midwestern University were recruited for this study via an announcement posted on the University’s Internet blackboard. The announcement contained a description of the study and a link to connect participants to an online survey. The survey did not provide the researcher with any personally identifiable information or e-mail addresses of the participants. Once a potential participant entered the survey, he or she first saw an informed consent statement. Potential participants who agreed to participate in the study had to click on a button labeled “I agree” that was positioned below the statement, “By clicking on the ‘I agree’ button you are acknowledging the risks, risks to confidentiality, and giving your informed consent to participate in this study. If you do not agree please exit this survey.”

After the survey was online for one month, data were anonymously compiled and recorded. The data were then used to compare rates of suicidal ideation and interpersonal aggressive ideation between college students and previously analyzed data on veterans who had taken the PDHRA.

Research Design

In order to determine whether rates of suicidal ideation and interpersonal aggressive ideation significantly differed between OIF veterans and a college student sample, a chi-square test for independence was used. A chi-square test for independence assesses whether paired observations on two variables, expressed in a contingency table, are independent of each other, or in this case whether the frequency of rates of suicidal and interpersonal aggressive ideation are independent of being an active duty OIF veteran, a National Guard and reserve OIF veteran, or a

participant in this study (Aron & Aron, 1999). Then, because of the multiple comparisons used in this analysis, significance is reported after Bonferroni's correction, in which the total alpha percentage is divided by the number of comparisons. Consequently, each comparison is made at a more stringent alpha level to further reduce the probability of making a Type I error (Aron & Aron, 1999). The alpha level after Bonferroni's correction was set at .025.

In order to determine if being able to report their suicidal or interpersonal aggressive ideation anonymously and over the Internet increased the likelihood of reporting, descriptive statistics were used. The question, "Were you more honest/accurate, less honest/accurate or the same honest/accurate on this anonymous Internet survey as you would have been in an in-person interview in reporting alcohol use and mental health problems?" was used. Subsequently, the percentage of participants who answered "more honest/accurate" was reported.

Results

The college students sampled in this study reported significantly higher rates of suicidal and interpersonal aggressive ideation on their PDHRA than both the active soldiers and the reserve and National Guard veterans indicated as published by Milliken et al. (2007). College students reported significantly higher rates of interpersonal aggressive ideation than both active soldiers (9.0% vs. 2.2%, $p = < .001$) and reserve and National Guard veterans (4.0%, $p = .012$). They also reported significantly higher rates of suicidal ideation than both active soldiers (9.0% vs. 0.06%, $p < .001$) and reserve and National Guard veterans (1.5%, $p < .001$). Odds ratios, measuring the strength of the associations are reported below in Table 1. All information on active duty veterans and reserve and National Guard veterans was taken from Milliken et al. (2007).

Table 1

PDHRA Suicidal and Interpersonal Aggressive Ideation Comparisons.

Group	College Students	Active Duty Veterans	National Guard and Reserve Veterans
<i>N</i>	100	56,350	31,885
Interpersonal Aggressive Ideation			
Positive Cases	9	1,231	1,285
Percentage	9	2.2	4.0
Pearson's Chi Square		21.583*	6.327*
Odds Ratio		0.226	0.425
Suicidal Ideation			
Positive Cases	9	353	463
Percentage	9	0.6	1.5
Pearson's Chi Square		109.850*	39.062*
Odds Ratio		0.064	0.149

* is significant at $p < .025$

In addition, 23 of the 100 students sampled in this study reported that they were more honest/accurate because of the anonymity of this Internet survey compared to what they would have been in an in-person interview in reporting mental health problems. The remaining 77 participants reported that their honesty/accuracy was unchanged by the anonymity of the Internet survey.

Discussion

The purposes of this study were to compare rates of suicidal ideation and interpersonal aggressive ideation between the results of OIF veterans' PDHRA screens as reported by Milliken et al. (2007) and a college student sample close in age and to assess whether anonymity in reporting would increase accuracy in reporting these more severe concerns. College students reporting anonymously had significantly higher prevalence rates and were at a minimum of six

times more likely than active duty and reserve and National Guard veterans to admit suicidal and interpersonal aggressive ideation. In addition, 23% of the sample indicated that the anonymous nature of the survey increased their accuracy in reporting mental health problems.

It is likely that the stigma associated with reporting serious mental health problems in the military is a major reason for these unexpected results. Due to the anonymous nature of this survey, the college students taking the PDHRA had no such stigma, concern for future employment, or fear of how they may be classified by their peers or superiors, giving a very accurate view of the prevalence rates of suicidal and interpersonal aggressive ideation in this group. Unfortunately, this implies that the prevalence rates of suicidal and interpersonal aggressive ideation in military personnel are being underreported given the disparity in prevalence rates between these groups, the previously documented stigma associated with admitting mental health problems in the military, and the likely repercussions military personnel may perceive given the danger associated with carrying a weapon while experiencing these severe mental health concerns (Hoge et al., 2004).

These findings suggest that there are many more veterans who suffer from suicidal ideation and thoughts of hurting others, but who may have been hesitant to report these feelings in the PDHRA. However, there are ways to increase the sensitivity of the PDHRA in recognizing and referring those with suicidal and interpersonal aggressive ideation. One way would be to offer an additional mental health assessment in which these same mental health screens are given, but at a different time and under anonymous conditions so those who do perceive a stigma in reporting their problems can admit concern. In this study, 23% of the college students sampled reported that they were more honest/accurate in admitting any mental health concern because of the guaranteed anonymity. This result is of great importance and

indicates that the procedure of anonymous reporting could be much more effective. It can also be easily adopted.

Another way to reduce stigma and increase the sensitivity of the PDHRA that could be used with or without a prior anonymous screening procedure would be to offer and establish additional opportunities for anonymous services like some offered through various veterans' hospitals and Vet Centers. However, given the stigma associated with seeking any form of mental health treatment while in the military, the government may find it beneficial to contract the services of area mental health organizations in order to offer free services to veterans who do not feel comfortable seeking help from the Department of Defense and Veterans' Administration systems.

There were many limitations to this study. First, this study was conducted using a small sample of college students from one public university in the Midwest. Therefore, the results may have limited generalizability and predictive validity to a larger and more diverse civilian sample. In addition, convenience sampling was used, sampling all college students who responded to the blackboard announcement. Because the sample was recruited this way, a large percentage of female participants were randomly excluded to more accurately match the demographics of the U.S. military. In addition, the mean age of the sample was 22.5 years, or a little less than 8 years younger than the sample of armed forces to which they were compared. Furthermore, the PDHRA is intended to be taken by veterans returning from overseas conflict while the civilian sample has had no such combat experience. However, the purpose of this study was to factor out what percentages of severe mental health concerns naturally exist among people in a similar age range, which justifies the use of these screens on this sample. Moreover, the survey was taken anonymously over the Internet, which may decrease stigma in reporting mental health concerns

and self-reportedly increased accuracy in reporting. Veterans taking the PDHRA had no such luxury, so the rates of suicidal and interpersonal aggressive ideation seen in this study may be more accurate but inflated, given that reporting anonymously on the Internet has been previously shown to increase accuracy in reporting illegal behaviors (Turner et al., 1998).

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