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STIGMA AND BARRIERS TO ACCESSING MENTAL HEALTH SERVICES PERCEIVED BY AIR FORCE NURSING PERSONNEL

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STIGMA AND BARRIERS TO ACCESSING MENTAL HEALTH SERVICES

PERCEIVED BY AIR FORCE NURSING PERSONNEL

BY

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BSN, Nursing, Northwestern State University, 1995

MSN, Nursing, Northwestern State University, 2001

DISSERTATION

Submitted in Partial Fulfillment of the
Requirements of the Degree of

Doctor of Philosophy

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DEDICATION

This work is dedicated to all of the past, present, and future military registered nurses and allied health personnel who have committed themselves to providing outstanding care for our military service members and their families. Their quiet professionalism and dedication allow our country's military forces to venture where no one else can or will go.

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ABSTRACT

This descriptive study assessed stigma and barriers to accessing mental health services in a convenience sample ($N = 211$) of Air Force nursing personnel, including 111 officers, 98 enlisted, and 2 of unknown grade, to answer the following research questions: (1) What are the perceived levels of stigma and barriers to accessing mental health services for Air Force nursing personnel? and (2) Does military grade affect perceived levels of stigma and barriers to accessing mental health services for officer and enlisted Air Force nursing personnel? The hypotheses were that there would be no difference between officer and enlisted Air Force nursing personnel in perceived levels of both stigma and barriers to care associated with accessing mental health services. Participants completed a survey that included the Britt (2000) and Hoge et al. (2004) stigma scale and the Hoge et al. (2004) barriers to care scale. The stigma scale's grand mean was 3.1 ($α = .89$; $SD = 0.97$), an average response of *neither agree nor disagree*. More than 50% of respondents agreed that *Members of my unit might have less confidence in me* and *My unit leadership might treat me differently*. The barriers to care scale's grand mean was 2.1, an average response of *disagree*. Scheduling an appointment was a barrier for approximately 20% of respondents. Approximately 40% of respondents agreed that difficulty getting time off

from work for treatment was a barrier to care. Significant differences between officer and enlisted responses to stigma and barriers to care items were found; however, the effect sizes were small. Compared with enlisted personnel, officers were more likely to agree that accessing mental health services would be embarrassing, harm their career, or cause leaders to blame them for the problem ($p \leq .03$ for each comparison). The sample's proportion indicating agreement to the stigma scale items were within ranges previously reported by service members screening positive for a mental health disorder after a deployment. Because perceptions of stigma and barriers to accessing mental health services endure, military leadership must stress the benefits of early access to mental health services and pursue an aggressive anti-stigma campaign.

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CHAPTER 1

INTRODUCTION

Since September 11, 2001, U.S. military service members have been deployed for contingency operations in Afghanistan, Iraq, and/or 52 other countries and geographical regions (Air Force Personnel Command, n.d.). More than 1.9 million American military service members have deployed to overseas locations for contingency operations to combat global terrorism since 2001 (Institute of Medicine [IOM], 2010). Many military service members have been deployed on two or more occasions for these operations.

Whereas the full cost of these operations has yet to be determined, many veterans have suffered physical and mental injuries. Physical injuries are more easily recognized, but the manifestations of mental injuries may be delayed and/or hidden for many reasons, including perceptions of stigma and barriers to accessing mental health services. These perceptions have been examined among army and marine combatants. However, service members, including nursing personnel, from all branches of the military are deployed for contingency operations to support these combatants. Relatively little is known about the perceptions among Air Force personnel of stigma or barriers to accessing mental health services, and no studies have specifically examined these perceptions among nursing personnel of any branch of military service.

Purpose of the Study

A descriptive comparative design was used to examine stigma and barriers to accessing mental health services perceived by officer and enlisted Air Force nursing personnel assigned or attached to an Air Force Medical Wing in the southern United States. The mental health of military service members directly involved in these contingency operations may be adversely affected by their experiences during a

deployment. One report discussing the effects of a deployment on military service members stated that 36% of veterans from these operations develop a mental health disorder (Bilmes, 2007).

Although mental health disorders can be severe and debilitating, military service members may choose not to seek needed mental health services. Perceptions of stigma and other barriers to care may deter service members from seeking needed mental health services (Castro & McGurk, 2007; Hoge et al., 2004). In studies of soldiers and marines, these perceptions existed in service members without a mental health disorder and significantly increase when a disorder is present (Castro & McGurk, 2007; Gorman, Blow, Ames, & Reed, 2011; Gould et al., 2010; Hoge et al., 2004; Kim, Britt, Klocko, Riviere, & Adler, 2011; Kim, Thomas, Wilk, Castro, & Hoge, 2010). Perceptions of stigma and barriers to mental health care endure despite military leaders' willingness to support service members seeking and receiving mental health treatment and beliefs that mental health care should not influence promotion potential (Gibbs, Olmsted, Brown, & Clinton-Sherrod, 2011; Porter & Johnson, 1994; Westphal, 2007). Because deployments of service members for contingency operations will continue in the foreseeable future, continued research with this population is essential.

Past research has focused on stigma and barriers to care perceived by army and marine combatants after a deployment; however, Airmen represent 19.3% of service members deployed for contingency operations since September 11, 2001 (Defense Manpower Data Center [DMDC] as cited in IOM, 2010). Only two published studies have investigated Airmen's perceptions of stigma and barriers to care. One study assessed a sample from the Air National Guard, but responses were aggregated with

information collected from soldiers and marines (Britt et al., 2011). Another study of Airmen identified stigma as a barrier to accessing mental health services, but the study's focus was the self-reporting of mental illness (Visco, 2009).

Although combatants serve in areas of active conflict and endure many stressors, service members from all military branches, including Air Force nursing personnel, support these combatants in deployed and nondeployed settings. Air Force nursing personnel have the primary goal of delivering "quality, compassionate, competent, cost-effective, and efficient nursing care to individuals, families, groups, and communities during peacetime and contingency operations" (Air Force Electronic Publishing, 2004, p. 1). Dr. Jonathan Woodson, an advisor to the Secretary of Defense, highlighted the role of deployed military medical personnel in maintaining the health of deployed forces during recent testimony before Congress (Cronk, 2011). Military medical personnel perform this service despite the high levels of stress experienced when providing care to wounded service members in hostile environments and their own risk of injury or death (Cronk, 2011). Information gained from research involving Air Force participants would enhance previous findings from other service branches reporting stigma and other barriers to seeking mental health services. Therefore, this investigation examined stigma and barriers to accessing mental health services perceived by Air Force nursing personnel.

Definition of Key Terms

The following definitions were applied to the terms used in this study:

- **Air Force Medical Wing:** A specialized Air Force organization with a medical mission and minimum population of 1,000 Airmen (Air Force Electronic

Publishing, 2012). A Wing is composed of a primary mission group and necessary supporting groups (Air Force Electronic Publishing, 2012).

- **Air Force nursing personnel:** Air Force registered nurses (46XX) and other military nursing personnel (e.g., 4N0s and 4N1s) who provide nursing care under the executive leadership of the nurse administrator (Air Force Electronic Publishing, 2004). Air Force registered nurses are commissioned officers; nursing personnel with a 4N0 or 4N1 designation are enlisted.

- **Air Force Wing:** An operational unit with one commander who has the authority and responsibility of command (Air Force Electronic Publishing, 2012). The Wing consists of operations, maintenance, mission support, and medical groups aligned to generate and employ combat capability with manpower levels appropriate to achieve mission success (Air Force Electronic Publishing, 2012).

- **Airmen:** A gender-neutral term for all officer or enlisted uniformed service members in the U.S. Air Force (Air Force Electronic Publishing, 2011).

- **Barriers to care:** Factors other than stigma that interfere with or negatively influence a service member's perceived ability to seek treatment, including a lack of knowledge regarding resources, inadequate transportation and financial resources, or inability to schedule and have time to seek treatment (Britt et al., 2011; Hoge et al., 2004).

- **Post-traumatic stress disorder (PTSD):** A psychological disorder that occurs after "a history of exposure to a traumatic event meeting two criteria and symptoms from each of three symptom clusters: intrusive recollections, avoidant/numbing symptoms, and hyper-arousal symptoms. A fifth criterion

concerns duration of symptoms and a sixth assesses functioning" (National Center for PTSD, 2007, para. 2).

- **Stigma:** The belief based on a service member's civilian and military enculturation that seeking mental health treatment would be discrediting, be embarrassing, cause harm to his or her career, and cause decreased confidence in his or her ability to perform assigned duties (Britt et al, 2011; Goffman, 1963).

Specific Aim, Research Questions, and Hypotheses

The specific aim of this investigation was to assess the perceived levels of stigma and barriers associated with accessing mental health services among nursing personnel (officers and enlisted) in the U. S. Air Force. To accomplish this aim, the research questions were:

1. What are the perceived levels of stigma and barriers to accessing mental health services for Air Force nursing personnel?

2. Does military grade affect the perceived levels of stigma and barriers to accessing mental health services for Air Force nursing personnel?

It was hypothesized that there would be no difference between the officer and enlisted Air Force nursing personnel's levels of perceived stigma associated with accessing mental health services. It was also hypothesized that there would be no difference between the officer and enlisted Air Force nursing personnel's levels of perceived barriers to care associated with accessing mental health services.

Answering the research questions and testing the hypotheses added to the understanding of service members' perceptions of stigma and barriers associated with accessing mental health services. Answering the first research question provided an

overall assessment of Air Force nursing service personnel's perceptions of stigma and barriers to accessing mental health services. Although these perceptions were assessed in a limited population of Air Force nursing personnel assigned or attached to a Medical Wing, the findings were compared with data reported in peer-reviewed literature on responses of combatants who have returned from a deployment (Castro & McGurk, 2007; Gorman et al., 2011; Gould et al., 2010; Hoge, et al., 2004; Kim et al., 2011; Kim et al., 2010). Because nursing personnel provide a wide range of health care services for active and reserve component service members, it is important to understand the extent to which their attitudes and beliefs about stigma and barriers associated with accessing mental health services resemble those of military service members who are not health care providers.

Answering the second research question and testing the two hypotheses challenged the findings from a recent study reporting that junior enlisted soldiers have increased concerns with reporting a mental illness. In a study of Army participants ($N =$ 270) from six instillations, Gibbs et al. (2011) reported that junior enlisted soldiers (grades E-1 to E-4) were more likely to express the concern that seeking mental health services would affect their career progression and personal image. The null hypotheses suggested that there would be no significant difference between officer and enlisted perceptions of stigma and barriers associated with accessing mental health services. Rejection of one or both null hypotheses would suggest that differences exist between officer and enlisted perceptions.

Scope of the Study

All Air Force nursing personnel assigned or attached to a Medical Wing in the southern United States were asked to participate in this study. This Medical Wing was an

active-duty unit and provided a potentially large population of officer and enlisted nursing personnel. The most recent manpower documents showed that 403 registered nurses (46XX), 569 medical technicians (4N0), and 117 surgical technicians (4N1) were assigned or attached to the Medical Wing at the time of the study (Air Force Medical Wing, 2012). These personnel provide nursing care for military service members and their dependents in multiple inpatient and outpatient settings located in a large metropolitan area.

Nursing service personnel assigned or attached to the Medical Wing were asked to complete a secure, anonymous electronic survey via the Research Electronic Data Capture (REDCap™) system administered under the auspices of the University of New Mexico Health Sciences Center Clinical and Translational Science Center (UNM HSC CTSC; Grant support: DHHS/NIH/NCRR #1UL1RR031977-01). The survey included items to collect demographic information and the six-item Britt (2000) and Hoge et al. (2004) stigma scale and five-item Hoge et al. (2004) barriers to care scale. Statistical analysis included descriptive statistics, item analysis, and Cronbach's alpha for the stigma and barriers questions, and comparisons between officer and enlisted perceptions using t tests, one-way analysis of variance (ANOVA), independent samples median test, and Fisher's exact tests.

Assumptions

The underlying assumptions of the study were that, regardless of rank, military branch, or occupation:

1. A substantial proportion of military service members had perceptions of stigma and barriers to accessing mental health services.

2. Perceptions of stigma and barriers to accessing mental health services may deter service members from seeking mental health services.

3. Service members were willing to accurately report their perceptions of stigma and barriers to accessing mental health services when offered an opportunity to do so in a confidential environment.

4. Attitudes of nursing personnel toward seeking mental health services influenced attitudes of service members in their care and were important to assess and understand.

5.   The Britt (2000) and Hoge et al. (2004) stigma scale and Hoge et al. (2004) barriers to care scale provided an accurate reflection of participating Air Force nursing personnel's perceptions of these concepts.

Limitations

This study had several potential limitations. First, a convenience sample was used. Convenience sampling increased the possibility of self-selection bias and representativeness (Burns & Grove, 2009). Another limitation was that this descriptive study surveyed Air Force nursing personnel in one Wing only. Because of this, the results cannot be generalized to the entire Air Force nursing service population (Burns & Grove, 2009). Additionally, the Medical Wing selected was in the process of reorganizing personnel to implement joint (multi-military service branch) staffing at multiple facilities. This reorganization provided a challenge to contacting all nursing personnel, and it is possible that the reorganization may have prevented some members of the organization from being contacted. A final limitation of the study was that, to protect confidentiality, participants were not asked whether they had been diagnosed with a mental health

disorder. Past research has demonstrated that if a service member has been diagnosed with a mental illness, that individual will perceive greater levels of stigma and barriers to accessing mental health services (Castro & McGurk, 2007; Gould et al., 2010; Hoge et al., 2004).

CHAPTER 2

REVIEW OF THE LITERATURE

Although the majority of U.S. military service members have deployed for wars in Afghanistan and Iraq, the Department of Defense (DOD) recognizes that a war on terror, a generalized term for numerous contingency operations, has been conducted in 54 countries and geographical regions (Air Force Personnel Command, n.d.). Many military service members have been deployed on two or more occasions for these operations. A theoretical framework and review of pertinent literature demonstrated the potential effects of a deployment on the mental health of service members.

Theoretical Framework

Prior to assessing the perceptions of stigma and barriers to care military service members associated with accessing mental health services, definitions of the concept of stigma were explored. Also, a modified version of the Theory of Planned Behavior (Ajzen, 1991, 2012; Britt et al., 2011) was examined as a framework for understanding the role of stigma and other barriers to care in influencing the treatment-seeking behaviors of military service members.

The Concept of Stigma

Stigma distinguishes an individual or group as different. The term was first used by the Greeks to literally or figuratively refer to a mark. A literal mark was a physical brand placed on criminals or slaves for identification ("Stigma," 2000). Figuratively, stigma referred to a "mark of disgrace or infamy" or "sign of severe censure or condemnation, regarded as impressed on a person or thing" ("Stigma," 2012). The Greek use of stigma as a mark or brand has been incorporated into contemporary definitions.

Goffman's (1963) *Stigma: Notes on the Management of Spoiled Identity*, a frequently cited work in the literature, offers a modern examination of stigma. Goffman defined stigma as "an attribute that is deeply discrediting" (p. 3). This attribute is discredited, a known difference, or discreditable, a difference that is not apparent to others. A society establishes categories of stigma that include "abominations of the body," "blemishes of individual character," or "tribal stigma of race, nation, and religion" (Goffman, 1963, p. 4). These categories enable a society to determine what is "ordinary and natural" (p. 2). If a member of society fits into one of these categories, stigmatization occurs. Individuals without stigma are "normal," and those with stigma are assumed to be "not quite human" (p. 5).

The Theory of Planned Behavior

The Theory of Planned Behavior (Ajzen, 1991, 2012; Figure 2-1) was adapted by Britt et al. (2011) to provide a framework to explain the factors that influence the decision of military service members to seek treatment for a mental health concern. Although the concepts of behavioral, normative, and control beliefs and actual behavior control are present in Figure 2-1, these concepts were not present in the earlier version of the Theory of Planned Behavior that was adapted by Britt et al. (2011). The original and adapted theories are explored in the following discussion.

Ajzen's Theory of Planned Behavior. Ajzen (1991, 2012) provides a framework to describe how individuals make the choice to engage in a selected behavior. In the theory, three factors directly influence an individual's intention and efforts to engage in a specific behavior (Ajzen, 1991, 2012). The first factor influencing intention is an individual's attitudes about a behavior. The individual's positive or negative attitudes
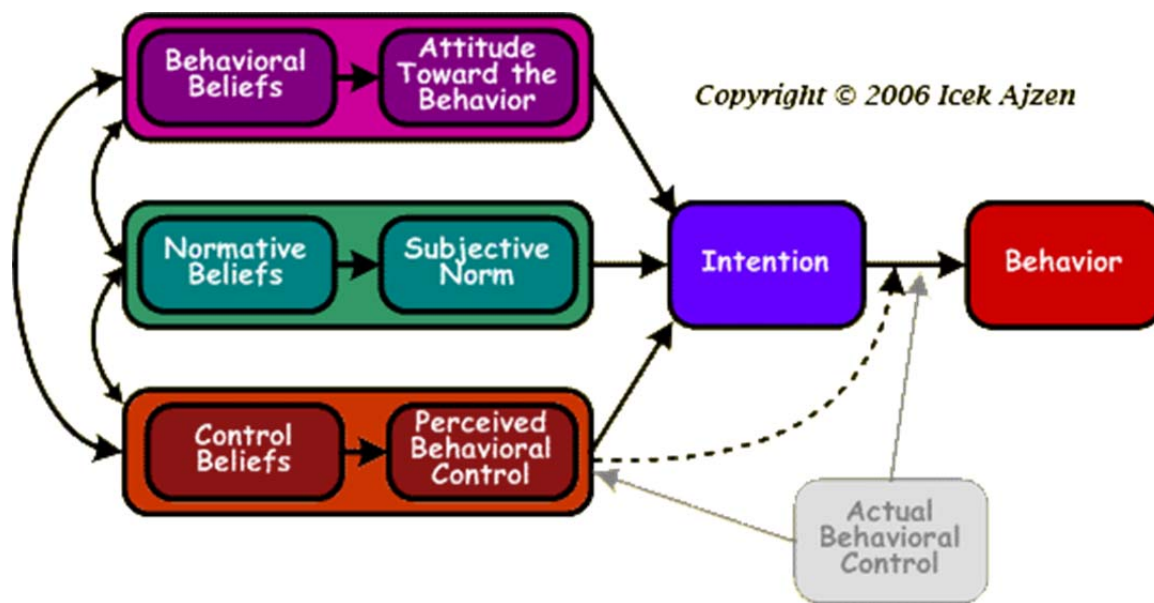
Figure 2-1. Theory of Planned Behavior. From "Theory of Planned Behavior Diagram," by I. Ajzen, 2012. Reprinted with permission. Copyright 2006 by Icek Ajzen.

regarding a behavior directly influence the intention to engage in a behavior (Ajzen, 1991, 2012). Subjective norms are the second factor that affects intention. These norms are based on the individual's understanding of how others may react to a behavior (Ajzen, 1991, 2012). The "likelihood that important referent individuals or groups approve of performing a given behavior" (Ajzen, 1991, p. 195) will directly influence the individual's intention to choose a behavior.

An individual's perceived control is the most influential factor in an individual's decision to engage in a certain behavior. Perceived control is the individual's "perception of the ease or difficulty of performing the behavior of interest" (Ajzen, 1991, p. 183). This perception is influenced by multiple variables. The individual's perception of control over a behavior is based on actual resources available, opportunities that exist, and actual or perceived barriers that must be overcome (Ajzen, 1991, 2012). The sum of actual and perceived determinants will directly affect the intention to engage in a

behavior and may be used predict the successful implementation of a behavior (Ajzen,

1991, 2012).

The Behavior of Military Service Members Seeking Treatment. The original

Theory of Planned Behavior was modified by Britt et al. (2011; Figure 2-2) to provide a

framework that explains the factors that affect a military service member's willingness to

engage in the behavior of seeking mental health services. The modifications, based on

research in military populations, reflect additional factors that influence a service

member's decision to seek mental health services.
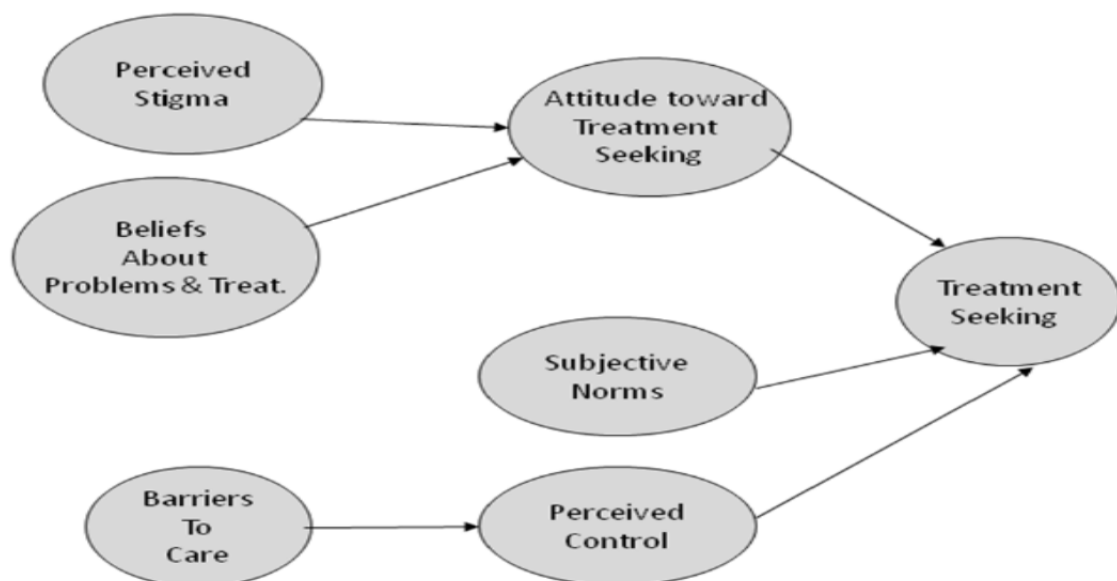
Figure 2-2. Modified Theory of Planned Behavior for Reserve Component Veteran
Treatment Seeking. From "The Theory of Planned Behavior and Reserve Component
Veteran Treatment Seeking," by Britt et al., 2011, *Military Psychology, 23*(1), p. 85.
Reprinted with Permission (Appendix A).

In this adapted theory, attitudes, subjective norms, and perceived control also

directly affect the behavior of seeking mental health services (Britt et al., 2011). Britt et

al. (2011) assert that the service member's level of perceived stigma, personal beliefs

about a mental illness and mental health care, and potential barriers to seeking mental health services are additional aspects that are essential in describing the behavior of seeking treatment.

Perceived stigma and the service member's personal beliefs influence an individual's attitude about seeking treatment (Britt et al., 2011). Perceived stigma is defined as the belief "that seeking treatment would be embarrassing, cause harm to their career, and/or cause their fellow unit members to have less confidence" (Britt et al., 2011, p. 83) in the service member. A service member's beliefs about his or her mental health problem and mental health treatment also influence his or her attitude toward treatment seeking (Britt et al., 2011). These beliefs are based on the service members' perceptions about the severity of their illness, the ability to cope with a mental illness without professional assistance and the extent to which family, peers, and leaders will support a decision to seek treatment (Britt et al., 2011). Potential barriers to care influence a service member's perceived ability to seek treatment. Examples of barriers to care include the inability to pay for treatment and inadequate transportation to see a mental health specialist (Britt et al., 2011).

The Modified Theory of Planned Behavior (Britt et al., 2011) guided research focused on veterans who had served in the reserve component. The researchers assessed the presence of mental health concerns, level of perceived stigma, barriers to care, views of psychological problems and treatment seeking, subjective norms and behavioral controls, and the presence of PTSD symptoms in a sample of 760 reserve component service members (Britt et al., 2011). Britt et al. (2011) reported that the service member's perceived stigma ($r = -.29$) and barriers to care ($r = -.24$) were related to his or her

attitude about seeking assistance. Additionally, barriers to care ($r = -.35$) were related to the reservist's perceived control (Britt et al., 2011). The predictors for treatment seeking were also evaluated. As described by the model, overall attitude ($\beta = .30$, $p = .002$, $OR = 1.34$), subjective norms ($\beta = .28$, $p = .019$, $OR = 1.32$), and perceived control ($\beta = .26$, $p = .026$, $OR = 1.30$) predicted the likelihood that service members reporting a mental health concern would seek mental health services (Britt et al., 2011). Based on the findings of the study, Britt et al. (2011) concluded that the model provides researchers with an adequate foundation for understanding the behavior of a military service member's decision to seek mental health services.

The U.S. Military and Contingency Operations Since September 11, 2001

Approximately 1.1 million active component and 820,000 reserve component personnel serve in the U.S. military (DOD, 2009). The DMDC (as cited in IOM, 2010), a restricted access database for the military, reported that as of April 2009, more than 1.3 million active component and more than 540,000 reserve component military service members had been deployed overseas for contingency operations after September 11, 2001 (9/11). Active component and reserve component military service members serve in five constituent service branches of the U.S. military: the Air Force, Army, Coast Guard, Marines, and Navy. Army personnel were most frequently deployed for contingency operations since 9/11. Army military service members represented 49.2% of past deployments, followed by Air Force (19.3%), Navy (18.4%), and Marine Corps personnel (12.8%; DMDC, as cited in IOM, 2010).

Veterans of current contingency operations, that is, contingency operations occurring after 9/11, had unique characteristics compared with veterans of past conflicts.

The U.S. military has increased its reliance on the reserve component to supplement active component forces. Of all deployed military service members, 28% were from the reserve component; the Army deployed the largest number (38%) of reserve component personnel (DMDC, as cited in IOM, 2010). Reserve component service members were typically older than active component personnel. Compared with their active component counterparts, the mean age of reserve component officers (31.2 vs. 40.6 years, respectively) and enlisted personnel (27.1 vs. 34.6 years, respectively) was significantly greater (DOD, 2007). Additionally, current contingency operations have been the first U.S. conflict where substantial numbers of female military service members have deployed for a conflict. Women represented 11% (211,729) of military service members deployed for current contingency operations (IOM, 2010). Regardless of a military service member's characteristics, military personnel face the burden of repeated deployments for contingency operations. Information from the DMDC (as cited in IOM, 2010) shows that 40% of military service members deployed for a contingency operation since 9/11 on two occasions and 14% deployed at least three times.

A second notable difference between current contingency operations and past wars has been the types of injuries and treatment received by military service members in the deployed setting. The most common severe injuries sustained by military service members in current contingency operations occurred from improvised explosive devices (IOM, 2010). Military service members injured by an improvised explosive device may experience devastating penetrating or blunt force tissue injuries, such as amputations and traumatic brain injury. Despite the great force and injury from an improvised explosive device, military service members increasingly survive the injury (IOM, 2010).

Approximately 90% of combat-related casualties survived injuries sustained in a war zone (Goldberg, 2007). This increased survival rate was related to enhanced body armor worn by deployed military service members, access to immediate life-saving measures after injury, improved medical technology, and prompt evacuation to facilities capable of a higher level of medical care (Goldberg, 2007). Although a military service member was more likely to survive the initial combat-related injury, a service member with a traumatic brain injury is prone to sustained neurological, cognitive, and psychosocial impairment (IOM, 2010).

Current Contingency Operations and Military Service Member Mental Health

The stresses of a deployment and combat have had a marked influence on the mental health of veterans. The Veterans for Common Sense (VCS) obtained data from the Department of Veterans Affairs (VA) under the Freedom of Information Act to assess the consequences of the wars in Afghanistan and Iraq. The VA reported that, as of September 2009, 508,152 (44%) of 1,159,637 veterans of current contingency operations eligible for veterans' benefits were enrolled in the VA health system (VCS, 2010). Of these patients, 48% (approximately 21% of all deployed) received treatment for a mental health disorder, including 28% being treated for PTSD (VCS, 2010). Service members can develop PTSD "after the direct, personal experience or witnessing of an event that poses a perceived threat of death or serious injury" (IOM, 2010, p. 67).

Veterans of a deployment still serving in the military may also have a high rate of mental health disorders. The reported prevalence of military service members developing a mental health disorder after a deployment ranged from 17% to 45% (Bilmes, 2007; Gorman et al., 2011; Hoge et al., 2004; Kim et al., 2010; Lapierre, Schwegler, &

LaBauve, 2007; Milliken, Auchterlonie, & Hoge, 2007; Seal et al., 2009). One large-scale, retrospective study of 493,888 soldiers and marines demonstrated that 19.1% of those who deployed to Iraq and 11.3% of those who deployed to Afghanistan developed a mental health disorder (Hoge, Auchterlonie, & Milliken, 2006). Multiple studies (Table 2-1) investigated the prevalence of specific types of mental health disorders after a deployment for a contingency operation. This research demonstrated that military service members deployed for current contingency operations were at risk for developing generalized anxiety, major depression, PTSD, and substance abuse.

Despite the prevalence of mental health disorders in military service members that develop after a deployment for a contingency operation, many service members do not seek treatment. Of military service members previously deployed to Iraq that screened positive for a mental health disorder, 78% of soldiers and 86% of marines acknowledged a mental health disorder, but only 43% and 45%, respectively, were interested in receiving help (Hoge et al., 2004). In soldiers previously deployed to Afghanistan who screened positive for a mental health disorder, 81% acknowledged a mental health disorder, but only 38% were interested in receiving help (Hoge et al., 2004). Another study confirmed that military service members with symptoms of a mental health disorder may choose not to seek help. Lapierre et al. (2007) found that 16% of veterans of the war in Iraq and 13% of the war in Afghanistan with symptoms of a mental health disorder sought treatment.

Perceived Stigma Associated With Seeking Mental Health Services

Perceived stigma is identified in the literature as a potential deterrent to military service members seeking mental health services (Britt, 2000; Castro & McGurk, 2007;

Table 2-1

Mental Health Disorders Experienced by Military Service Members After a Deployment

Study	*N*	Anxiety	Depression	PTSD	Substance Abuse
Gorman et al. (2011)	332				
RC Soldiers		N/A	21%	11%	N/A
Hoge et al. (2004)	6,201				
Army after Afghanistan		17.2%	14.2%	11.5%	24.5%
Army after Iraq		17.5%	15.2%	18%	24.2%
Marines after Iraq		14.7%	14.7%	19.9%	35.4%
Hoge et al. (2007)	2,863				
Army after Iraq		N/A	N/A	16.7%	N/A
Kim et al. (2010)	10,386				
Army AC 3months after Iraq		9%	8%	15%	N/A
Army RC 3months after Iraq		4%	4%	13%	N/A
Army AC 12 months after Iraq		9%	9%	16%	N/A
Army RC 12 months after Iraq		7%	6%	17%	N/A
Lapierre et al. (2007)	4,076				
Army after Afghanistan		N/A	38%	30%	N/A
Army after Iraq		N/A	37%	31%	N/A
Seal et al. (2009)					
Afghanistan and Iraq veterans	289,328	N/A	17.4%	21.8%	N/A
Thomas et al. (2010)	18,305				
Army AC 3 months after Iraq		N/A	16%	20.7%	12.4%
Army AC 12 months after Iraq		N/A	15.7%	23.7%	9.9%
Army RC 3 months after Iraq		N/A	11.5%	21.5%	14.5%
Army RC 12 months after Iraq		N/A	15.9%	30.5%	15%

Note. AC= active component; RC= reserve component. Adapted from "Combat Duty in Iraq and Afghanistan, Mental Health Problems, and Barriers to Care," by Hoge et al., 2004, *The New England Journal of Medicine, 351,* p. 19; "Association of Somatic Symptoms, Health Care Visits, and Absenteeism Among Iraqi War Veterans," by Hoge et al., 2007, *American Journal of Psychiatry, 164*, p. 150; "Posttraumatic Stress and Depression Symptoms in Soldiers Returning From Combat Operations in Iraq and Afghanistan," by Lapierre et al., 2007, *Journal of Traumatic Stress, 20,* p. 937; "Stigma, Barriers to Care, and Use of Mental Health Services Among Active Duty And National Guard Soldiers After Combat," by Kim et al., 2010, *Psychiatric Services, 61*, p. 585; "Prevalence of Mental Health Problems and Functional Impairment Among Active Component and National Guard Soldiers 3 and 12 Months Following Combat in Iraq," by Thomas et al., 2010, *Archives of General Psychiatry, 67,* p. 619-620; and "National Guard Families After Combat: Mental Health, Use of Mental Health Services, and Perceived Barriers to Care," by Gorman et al., 2011, *Psychiatric Services, 62*, p. 32.

Gibbs et al., 2011; Gorman et al., 2011; Hoge et al., 2004; IOM, 2010; Kim et al., 2011; Lamberg, 2004; Langston et al., 2010; Magnezi, Zrihen, Ashkenazi, & Lubin, 2007; Stecker, Fortney, Hamilton, & Ajzen, 2007; Viscoe, 2009). Stigma may be experienced by any individual with a mental illness (Bagley & King, 2005; Barney, Griffiths, Jorm, & Christensen, 2006; Corrigan, 2007). Stigma also accentuates the disabling effects of a mental illness (Van Brakel et al., 2006).

Actual stigma is experienced as "stereotypes, prejudice, and discrimination" (Corrigan, 2006, p. 226) that can lead to physical and verbal abuse. Individuals seeking assistance for a mental illness are also subjected to "self and perceived stigma" (Barney et al., 2006, p. 51). The effects of self- or perceived stigma include a reluctance to seek treatment (Jenerette, Funk, & Murdaugh, 2005); isolation, shame, and low self-esteem (Corrigan, 2007; Preminger, 2007); and blame, guilt, and failure to reveal an illness (Scollan-Koliopoulos, Connell, & Walker, 2005).

Despite the increased understanding of the causes of mental illness, stigma associated with a mental health disorder remains prevalent in the United States. When comparing the responses of a sample of 1,956 U.S. adults in 2006 with a previous study in 1996, a significantly greater proportion of respondents identified the likely cause of a mental illness as a neurobiological imbalance (Pescosolido et al., 2010). However, there was no significant difference in the proportions of respondents who were willing to work, socialize, or befriend an individual with a mental illness. The 2006 sample was also significantly more likely than the 1996 sample not to want to have a neighbor who has a mental illness (Pescosolido et al., 2010).

The stigma of having a mental health disorder has additional consequences in the military population. Stigma related to a mental health problem has been perceived to cause a service member to be treated differently by leaders, be perceived as weak or malingering, decrease confidence in his or her abilities, and harm his or her career (Castro & McGurk, 2007; Gibbs et al., 2011; Gould et al., 2010; Hoge et al., 2004; Iversen et al., 2011; Viscoe, 2009). Also, fears that seeking mental health services leads to labeling and poor career progression exist (Gibbs et al., 2011; Stecker et al., 2007). Although these perceptions were expressed by soldiers and marines of all military grades, junior enlisted soldiers (grades E-1 to E-4) were more likely to express these fears during a series of focused interviews at six Army installations (Gibbs et al., 2011). These perceptions continue, despite research that has shown that military leaders generally support their subordinates accessing needed mental health services (Gibbs et al., 2011; Porter & Johnson, 1994; Westphal, 2007).

In a study that assessed perceptions of stigma in soldiers ($N = 2,678$) prior to a deployment (Warner, Appenzeller, Mullen, Warner, & Grieger, 2008), the perceptions of stigma of those who had previously deployed were compared with those who had not. Soldiers who had deployed were significantly more likely to perceive that their leadership would treat them differently (24%), compared with those who had not previously deployed (20.6%; Warner et al., 2008). Additionally, previously deployed soldiers were significantly more likely to perceive seeking mental health services as embarrassing (16% vs. 13%) and causing the soldiers to been seen as weak (19.4% vs. 16%) (Warner et al., 2008).

In studies of soldiers and marines after a deployment, perceptions of stigma were likely to increase when a mental health disorder is experienced (Table 2-2). The increased likelihood of military service members perceiving stigma could prevent individuals most in need of help from accessing mental health services.

Table 2-2

Military Service Member Stigma Responses After a Deployment

Response	Negative Screen for a Mental Health Disorder	Positive Screen for a Mental Health Disorder
It would be too embarrassing.	13-18%	16-41%
It would harm my career.	12-24%	28-50%
Members of my unit may have less confidence in me.	18-31%	47-59%
My unit leadership might treat me differently.	18-38%	34-63%
My leaders would blame me for the problem.	7-20%	10-51%
I would be seen as weak.	18-34%	33-65%

Note. Adapted from "Combat Duty in Iraq and Afghanistan, Mental Health Problems, and Barriers to Care," by Hoge et al., 2004, *The New England Journal of Medicine, 351,* p. 21; "The Intensity of Combat and Behavioral Health Status," by Castro and McGurk, 2007, *Traumatology, 13,* p. 18; "Do Stigma and Other Perceived Barriers to Mental Health Care Differ Across Armed Forces?" by Gould et al., 2010, *Journal of the Royal Society of Medicine, 103*, p. 153; "Stigma, Barriers to Care, and Use of Mental Health Services Among Active Duty and National Guard Soldiers After Combat," by Kim et al., 2010, *Psychiatric Services, 61*, p. 585; "Stigma, Negative Attitudes About Treatment, and Utilization of Mental Health Care Among Soldiers," by Kim et al., 2011, *Military Psychology, 23*, p. 73; and "National Guard Families After Combat: Mental Health, Use of Mental Health Services, and Perceived Treatment Barriers," by Gorman et al., 2011, *Psychiatric Services, 62*, p. 32.

Barriers Associated With Seeking Mental Health Services

Military service members face additional barriers that influence their decision to seek mental health services. These potential barriers include a lack of trust in mental health professionals, concerns about the cost of treatment, inadequate transportation, insufficient time to attend an appointment, or not knowing where to obtain help (Gorman et al., 2011; Gould et al., 2010; Hoge et al., 2004; Iversen et al., 2011; Kim et al., 2011; Kim et al., 2010; Lapierre et al., 2007; Stecker et al., 2007). Studies of soldiers and marines after a deployment demonstrated that perceptions of barriers to accessing mental

health services (Table 2-3) can be experienced by military service members. These

barriers, in combination with perceptions of stigma, may also prevent individuals from

accessing mental health services.

Table 2-3

Barriers to Care Identified by Military Service Members After a Deployment

Barrier	Negative Screen for a Mental Health Disorder	Positive Screen for a Mental Health Disorder
I don't know where to get help.	2-6%	7%-22%
I don't have adequate transportation.	6%	5-18%
It is difficult to schedule an appointment.	6-17%	18-45%
It would be difficult getting time off work for treatment.	10-22%	20-55%
Mental health care costs too much money.	10-15%	13-25%

Note. Adapted from "The Intensity of Combat and Behavioral Health Status," by Castro and McGurk, 2007, *Traumatology, 13,* p. 18; "Do Stigma and Other Perceived Barriers to Mental Health Care Differ Across Armed Forces?" by Gould et al., 2010, *Journal of the Royal Society of Medicine, 103*, p. 153; "Combat Duty in Iraq and Afghanistan, Mental Health Problems, and Barriers to Care," by Hoge et al., 2004, *The New England Journal of Medicine, 351,* p. 21; "Stigma, Barriers to Care, and Use of Mental Health Services Among Active Duty and National Guard Soldiers After Combat," by Kim et al., 2010, *Psychiatric Services, 61*, p. 585; "Stigma, Negative Attitudes About Treatment, and Utilization of Mental Health Care Among Soldiers," by Kim et al., 2011, *Military Psychology, 23*, p. 73; and "National Guard Families After Combat: Mental Health, Use of Mental Health Services, and Perceived Treatment Barriers," by Gorman et al., 2011, *Psychiatric Services, 62*, p. 32.

Mental Health Disorders and Military Service Member Health

The development of a mental health disorder can have immediate and ongoing

consequences for a military service member's health. One problem associated with a

mental health disorder is substance abuse. The National Center for PTSD (2004) reports

that veterans abuse alcohol or other substances to cope with past memories and painful

thoughts after experiencing stressors during a deployment. In a study of military service

members returning from a deployment to Iraq, 24.5% of soldiers and 34.5% of marines

reported that they drank more alcohol than they meant to consume, and 18.2% felt that

they needed to decrease the amount of alcohol that they consumed (Hoge et al., 2004).

Another study of soldiers returning from Iraq ($N = 1,120$) showed that 25% abused alcohol and 12% had behavioral problems related to alcohol use (Wilk et al., 2010). If alcohol abuse continues, an individual is at increased risk for cardiovascular disease, certain types of cancer, and liver disease (National Center for PTSD, 2004; Substance Abuse and Mental Health Services Administration, 2005).

Military service members with PTSD are more likely to report physical discomfort. The relationship between somatic symptoms and PTSD was investigated in 2,863 soldiers 1 year after a deployment to Iraq (Hoge et al., 2007). Hoge et al. (2007) reported that soldiers who screened positive for PTSD were significantly more likely than those who screened negative to report their health as fair or poor (47% vs. 20%) and more likely to use sick call at least twice in a month (38% vs. 21%). These soldiers were also more likely to report physical discomfort. This discomfort included having difficulty sleeping (71% vs. 26%) and feeling tired or lacking energy (75% vs. 28%). Participants with PTSD were also significantly more likely to feel back, joint, stomach, or chest pain; report shortness of breath; experience bowel abnormalities; and report problems with sexual intercourse (Hoge et al., 2007).

Over time, impairment of an individual's mental health may have additional consequences. Military service members with a mental health disorder have difficulty with social relationships. For example, military service members with PTSD are more likely to have a breakdown in family cohesion and relationships with others, leading to withdrawal and isolation (National Center for PTSD, 2004). Social isolation and other symptoms associated with a mental health disorder place service members at increased risk for suicide. The Chairman of the Joint Chiefs of Staff acknowledged that since the

beginning of current contingency operations, suicide rates in all service branches have exceeded the national rate (Carden, 2010). Recently, suicide rates in the Army Reserve increased significantly compared with their active duty counterparts (Christenson, 2011). This disturbing trend led to substantial efforts focused on providing education and implementing programs to prevent suicides (Carden, 2010). Even if a veteran receives treatment for impaired mental health, these conditions may lead to long-term health problems. Yaffe et al. (2010) investigated the incidence of dementia in 181,093 veterans, aged 55 years or older. The researchers found that veterans with PTSD were more than twice as likely to develop dementia compared with veterans without PTSD (Yaffe, 2010).

Key Findings From the Literature

The stresses of a deployment weigh heavily on veterans of past and current conflicts. The literature demonstrated that military service members deployed for contingency operations are at risk for developing a mental health disorder, including substance abuse, anxiety, depression, and PTSD. These mental health disorders manifest through psychological and physical symptoms. Over time, the weight of a disorder resulted in a decreased quality of life, decreased cognitive functioning, and increased risk of suicide.

The review of literature demonstrated gaps in the understanding of stigma and additional barriers for military service members utilizing mental health services. First, the majority of studies in the literature assessed stigma and barriers to care perceived by military service members after a deployment. Although stigma and barriers to care were more likely to be perceived by military service members screening positive for a mental health disorder after a deployment, some level of stigma and barriers to care associated

with accessing mental health services were also perceived by service members screening negative for a mental health disorder (Castro & McGurk, 2007; Gould et al., 2010; Hoge et al., 2004). An assessment of military service members' perceptions of stigma and barriers to care prior to a deployment would be helpful to determine whether these perceptions increase during or after a deployment.

Previous research focused on the perceptions of stigma and barriers to care reported by army and marine combatants after a deployment. Although soldiers and marines account for 62% of deployed military service members for current contingency operations, the perceptions of military service members in the Air Force, who comprise 19% of the military deployed for current contingency operations, received limited attention. Only two studies investigated perceptions of stigma and barriers to care experienced by Airmen. One study assessed a small sample ($N = 122$) of Air National Guard members, but the responses focused on stigma and barriers to care were aggregated into information collected from reserve component soldiers and marines (Britt et al., 2011). A second study of active component Airmen ($N = 200$) identified stigma as a barrier to accessing mental health, but the study's primary focus was the self-reporting of mental illness and access to care (Visco, 2009).

Past research studies also focused on military service members who were combatants (Gorman et al, 2011; Gould et al., 2010; Hoge et al., 2004; Iversen et al., 2011; Kim et al., 2011; Kim et al., 2010; Lapierre et al., 2007; Stecker et al., 2007). These studies overlook the large number of deployed personnel required to support combat troops. For example, in a Brigade Combat Team, approximately 600 of 3,900 soldiers serve in a support capacity (Tilzey, Kasavicha, & Rote, 2008). Additional

military service members serving in support capacities, such as medical, mortuary affairs, and transportation services, who are not assigned to line units, can also be subjected to stress and the threat of injury during a contingency operation. For example, the stresses experienced by deployed military medical personnel were discussed during testimony before Congress. Military medical personnel play a key role in maintaining the health of deployed forces, and these personnel perform this service despite the high stress of providing care to wounded service members in hostile environments and their risk of injury or death (Cronk, 2011). Future studies would be helpful in understanding Airmen's perceptions of stigma and other potential barriers to utilizing mental health services.

Air Force nursing personnel provide direct patient care for military service members and their dependents. Because nursing personnel typically receive education regarding mental illness and work directly with patients who may have an illness, they are in a position to assess for and recognize signs of a potential or actual mental illness, as well as provide illness-specific education. A nurse's perceptions of stigma and barriers to care have the potential to delay reporting of a potential illness or may be reflected, either intentionally or unintentionally, during patient care and education.

Utility of the Modified Theory of Planned Behavior in a Military Population

Findings from the literature demonstrate that the Modified Theory of Planned Behavior provides a conceptualization of the roles of stigma and barriers to accessing care that will influence a military service member's decision to seek mental health services. This conceptualization will be valuable in guiding investigations focused on service members' perceptions of stigma and barriers to accessing care. Goffman (1963) and Britt et al. (2011) describe the importance of societal conceptions to how an

individual understands the potential consequences of devaluation and discrimination when mental health services are accessed. In addition to learned societal conceptions, military service members also internalize the military culture's attitudes of mental illness throughout their careers. These attitudes, including preconceptions of weakness and possible discrimination and devaluation from leaders and peers (Castro & McGurk, 2007; Gould et al., 2010; Hoge et al., 2004), supplement the service members' knowledge of and beliefs about how societal preconceptions relate to mental illness.

The combination of a society's and the military's attitudes toward the mentally ill is internalized by service members and guides their responses to their own or other service members' mental health. Military service members without a mental illness are categorized as normal, whereas, service members with a mental health disorder may be regarded as weak or broken. If a military service member has a mental illness, he or she will understand how other service members may react to the illness and will base his or her response to the illness on this knowledge. Although many military service members seek help for a mental illness (VCS, 2010), as many as 62% of military service members with symptoms of a mental health disorder choose not to get help (Hoge et al., 2004). Concealment of the illness may be manifested in the breakdown of social and family relationships, absenteeism, withdrawal, and isolation (Hoge et al., 2007; National Center for PTSD, 2004).

If increased perceptions of stigma and barriers to care prevent an individual from accessing mental health services, negative consequences can be experienced by military service members. Negative consequences may be seen in substance abuse (Hoge et al., 2004; National Center for PTSD, 2004), reports of physical discomfort (Hoge et al.,

2007), and suicide (Carden, 2010). Over time, these negative consequences contribute to chronic health impairment for a veteran. Long-term consequences from a chronic response to mental illness include cardiovascular disease, cancer, and liver disease from substance abuse (National Center for PTSD, 2004), or dementia (Yaffe et al., 2010).

CHAPTER 3

METHODS

A descriptive comparative research design was used to investigate perceptions of stigma and other barriers that Air Force nursing personnel associated with utilizing mental health services. The study was guided by the Modified Theory of Planned Behavior (Britt et al., 2011). Airmen assigned and attached to the Medical Wing's nursing service, consisting of registered nurses, medical technicians, and surgical technicians, were recruited. Data, including demographics and perceptions of stigma and barriers to accessing mental health services, were collected through a web-based survey of Airmen who consented to participate in the study. The cross-sectional survey was administered, and study data were collected and managed using REDCap tools (Harris et al., 2009) hosted at the UNM HSC CTSC (Grant support: DHHS/NIH/NCRR #1UL1RR031977-01). REDCap™ is a secure, web-based application designed to support data capture for research studies.

A descriptive comparative study design was appropriate for this study because it permitted an examination of the differences in characteristics among two or more groups in a natural setting in which there is no experimental treatment or intervention (Burns & Grove, 2009). A descriptive design was also appropriate for investigating a known variable in a new population (Wood & Ross-Kerr, 2011). This study design allowed the investigator to measure perceived levels of stigma and barriers to accessing mental health services for Air Force nursing service personnel and compare levels reported by officer and enlisted respondents. The study occurred in a natural setting where potential participants were assigned or attached as a result of their enlistment in the U.S. Air Force.

Potential threats to validity associated with the use of a descriptive design included a limited ability to generalize the research findings beyond the sample (Burns & Grove, 2009; Shadish, Cook, & Campbell, 2002) and increased potential sources of bias relative to an experimental design with a control group (Shadish et al., 2002). Steps that were taken to decrease bias included the use of well-defined constructs from a theoretical framework adapted to military populations, sampling with nonrestrictive inclusion criteria, and the use of reliable and valid instruments (Burns & Grove, 2009).

Setting

The study was conducted with a large, active-duty Air Force Medical Wing located in the southern United States. The Medical Wing has a mission to provide: comprehensive health care for service members and their dependents stationed in a large, metropolitan area; deployable health care teams; health care education and clinical training; and research initiatives and oversight. Members of the Medical Wing were assigned or attached to multiple inpatient and outpatient locations. At the time of the study, the Medical Wing was in the process of consolidating patient services. With this consolidation, Air Force nursing personnel were being integrated with health care personnel from other service branches to provide joint staffing at these locations.

Participants

At the time of the study, 403 registered nurses (46XX), 569 medical technicians (4N0), and 117 surgical technicians (4N1) were assigned or attached to the Medical Wing (Air Force Medical Wing, 2012). All of the registered nurses were officers, and all of the technicians were enlisted. These personnel were stationed at multiple inpatient and outpatient areas. For this study, a convenience sample of Air Force nursing personnel was

obtained. Convenience sampling, a type of nonprobability sampling, was used because probability sampling was not feasible and because a new area of study was explored (Burns & Grove, 2009). Nonprobability sampling was also useful for determining whether the variables of interest were present in the population to a sufficient extent to justify further research (Henry, 1990). Prior to this study, stigma and other barriers associated with accessing mental health care had not been examined exclusively in Air Force nursing personnel. Finally, because of the relatively small number of potential participants ($N = 1,089$) in the Medical Wing, the use of a convenience sample increased the likelihood that a sample of sufficient size for adequate statistical power was obtained.

Officer and enlisted Air Force nursing service personnel assigned or attached to the Medical Wing were recruited for this study. Inclusion criteria were:

1. Nursing service personnel assigned or attached to the Medical Wing,

2. Uniformed members of the U.S. Air Force, and

3. Able to provide informed consent to participate in the study.

Sample Size

A power analysis helped to estimate the approximate sample size necessary for the proposed statistical analysis. A power analysis reflects the likelihood of finding a statistically significant effect (e.g., difference in means or correlation between variables) in a sample when the characteristic in question is present in the population being sampled (Cohen, 1988). For this study, a power of .80 and alpha level of .05 (two-tailed) was used. To select an appropriate effect size, past literature was assessed. Kim et al. (2010) used the Britt (2000) and Hoge et al. (2004) stigma and barriers to care scales to compare active duty soldiers ($n = 2,023$) with National Guard soldiers ($n = 470$) who were

assessed as being at risk for mental health problems. The mean stigma scale scores were

3.08 (SD = 1.04) versus 2.65 (SD = 0.97), respectively, on a 5-point mean scale score

(i.e., total score divided by number of items), $t(2,352)$ = 8.25, p < .0001 (Kim et al.,

2010). The effect size for difference was equivalent to a point-biserial correlation

coefficient of r = .17, which is relatively small (Cohen, 1988). In the same sample, mean

barriers to care scale scores were nearly identical in magnitude and dispersion for both

active-duty and National Guard soldiers (Kim et al., 2010), and the negligible difference

was not statistically significant. Insufficient data were reported by Kim et al. (2010) to

calculate a standardized mean difference for either scale. Based on a review of studies

that had computed a standardized minimally important difference, Norman, Sloan, and

Wyrwich (2003) recommended that half a standard deviation was a reasonable estimate

for a minimally important difference "as a default value unless other evidence comes to

light" (p. 590).

     As will be discussed, hypothesis testing was performed utilizing an independent

means t test to compare mean scores of officers and enlisted Air Force nursing personnel

on the Britt (2000) and Hoge et al. (2004) stigma and barriers to care scales, and χ^2 or

Fisher exact tests for differences in proportions of officers and enlisted personnel

reporting stigmatizing versus nonstigmatizing responses to stigma and barrier items.

     With an independent-means t test, half a standard deviation difference

recommended by Norman et al. (2003) as a reasonable value for a minimum important

difference also corresponds to Cohen's (1988) suggested threshold value for a moderate

effect size (standardized mean difference) for a difference in means between two groups.

A minimum sample size of 64 officers and 64 enlisted Air Force participants was

necessary to achieve 80% power to detect a 0.5-standard-deviation difference in means at a two-tailed alpha of .05 (Cohen, 1988; Faul, Erdfelder, Lang, & Buchner, 2007). If a slightly smaller effect size estimate was used (standardized mean difference = 0.4 SD or a point-biserial $r = .20$) at the same alpha and power, a sample size of 100 officers and 100 enlisted Air Force participants would be needed for equivalent power at the same alpha error level (Faul et al., 2007).

In previous studies using the Britt and Hoge et al. stigma and barriers to care scales, exploratory analyses dichotomized responses to each item as an absence or indicative of stigma or barrier to care. Based also on the Kim et al. (2010) study, the baseline proportions in the National Guard group were on the order of a median estimate of 0.20 for stigma or barriers versus approximately 0.31 for active-duty soldiers and a median difference of proportions between groups of 0.14. A difference of proportions of ± 0.12 was used as a basis for power analysis for a difference of proportions between two groups. Based upon this difference of proportions, group sizes of at least 147 per group would be sufficient for 80% power to detect a difference between a null hypothesis that the population proportion was 0.20 versus an alternative that it is 0.08 and 60% power versus an alternative that it is 0.32. Group sizes of at least 225 per group would be needed for 80% power to detect a difference between the same null hypothesis versus an alternative of 0.32.

Procedures

This study was conducted with Air Force nursing personnel attached or assigned to the Medical Wing stationed in inpatient and outpatient settings located within a large metropolitan area. Initial Human Research Review Committee (HRRC) approval was

received on November 18, 2011. Because the HRRC deemed that the study met requirements for an exempt status, the Medical Wing's institutional review board ceded overall review responsibility to the HRRC. An amendment was requested to the HRRC for approval of the informed consent cover letter and recruitment materials in December 2011. The amendment was expedited and approved on January 25, 2012.

I sought and received the support of the Chief Nursing Officer and Nurse Researcher of the Medical Wing. The chief nurse and supporting staff of the Medical Wing were briefed on the potential benefits and risks of the study, the estimated time necessary to complete participation, and the steps taken to assure anonymity. These individuals were asked to discuss and post information (Appendix B) related to the study for their unit members to read. Information related to the study, including inclusion criteria, was posted in high-traffic areas where nursing personnel were stationed for potential participants to read.

I also provided in-person informational sessions with potentially eligible personnel utilizing an approved script (Appendix C) from January 9 to 13, 2012, to enlist support at the Medical Wing and to publicize the study. For these sessions, I traveled to the Medical Wing and met with potential participants to provide information about the study and answered all potential participants' questions pertaining to the study. A second informational presentation was performed during the Medical Wing's Research Day on January 27.

The Chief Nursing Officer and supporting staff provided guidance on and approval of an electronic memorandum (Appendix D) to be electronically sent to potential participants. Based on this guidance and the requirements of the UNM Human

Research Protections Office (HRPO) for anonymous survey consent, I obtained approval of the consent cover letter (HRPO# 11-561). As recommended by Dillman, Smyth, and Christian (2009), this memorandum acted as an invitation to participate in the study, provided information about the study, provided a uniform resource locator (URL), and gave instructions for completing the secure, anonymous electronic survey via the REDCap™ system. Data collection began on January 27, after UNM HRPO approval of the informed consent letter was received.

After consultation with the chief nurse and supporting staff, the decision was made to send the electronic memorandum through an officer and enlisted staff member designated by the supporting staff. The designated officer and enlisted staff member were not in the chain of command of his or her respective officer or enlisted colleagues. E-mails were sent using existing electronic address groups for the 46XXs, 4N0s, and 4N1s. To decrease participants' concerns about a potential breach in confidentiality, e-mails did not reveal other recipients' e-mail addresses (Dillman et al., 2009).

The initial e-mail request was sent to officer nursing personnel on January 31 and enlisted personnel on February 2. Up to three weekly follow-up e-mail contacts were planned to be sent to potential participants beginning 1 week after the initial e-mail was sent (Coughlan, Cronin, & Ryan, 2009; Dillman et al., 2009; Van Selm & Jankowski, 2006). Three follow-up e-mails were sent to the potential 4N0 and 4N1 participants during the data collection; the 46XXs were sent only two reminders. After the initial e-mail request, the supporting staff recognized that the officer electronic contact list included only half of all 46XXs assigned or attached to the Medical Wing. The supporting staff updated the contact list, and because of this delay, the number of follow-

up contacts was decreased to evenly space the remaining follow-up e-mail contacts. The final reminder was sent to all nursing personnel on March 6, and the survey was placed in inactive status on March 12. Data analysis was completed under the supervision of the principal investigator's dissertation chair from March 12 to 14.

The use of an online survey had the potential benefit of encouraging accurate responses from participants by allowing them to complete the survey in a time and location of the participant's choosing. Online and web-based surveys have been found to be ideal for collecting data from participants who have experience using the Internet and to increase anonymous sharing of participant experiences and opinions (Van Selm & Jankowski, 2006). Air Force personnel use the Internet and web-based systems frequently for education and personnel actions. Participants were able to complete this brief, 20-item, web-based survey (Appendix E) at work or home. The survey included nine items that collected demographic and service information and the 11-item Britt and Hoge et al. stigma and barriers to care scales. It was estimated to take no longer than 5 to 10 minutes to complete.

Variables and Measures

The first nine items of the survey (Appendix E) included questions about demographic (sex, age, marital status, ethnicity, race, use of mental health services) and military service (grade/rank, previous deployment, expeditionary medal) characteristics to provide descriptive information about the sample. The next six items assessed perceptions of stigma associated with accessing mental health services (Britt, 2000; Hoge et al., 2004). Perceived stigma was defined as the belief, based on the service member's civilian and military enculturation, that seeking mental health treatment would be

discrediting, be embarrassing, cause harm to his or her career, and cause decreased confidence in his or her ability to perform assigned duties (Britt et al, 2011; Goffman, 1963). This belief was based on service members' perceptions about the severity of their illness, the ability to cope with a mental illness without professional assistance, and how family, peers, and leaders would support a decision to seek treatment (Britt et al., 2011).

The final five items assessed other potential barriers that military service members may encounter when accessing mental health services. Barriers to care were factors other than stigma that interfered with or negatively influenced a service member's perceived ability to seek treatment, including knowledge of resources, adequate transportation and financial resources, and ability to schedule and have time to seek treatment (Hoge et al., 2004).

The items assessing stigma and barriers to care have been used in past studies to assess military service members' perceptions associated with accessing mental health services. Britt (2000) used the first three statements to assess stigma associated with medical and psychological screening among military service members returning from a deployment to Bosnia. These items were extended by Hoge et al. (2004) into their present form and used to assess stigma and barriers to accessing mental health services among service members returning from deployments to Afghanistan and Iraq (Hoge et al., 2004).

The Britt and Hoge et al. stigma and barriers to care scales were appropriate for assessing stigma and barriers to accessing mental health services perceived by military service members. Items with Likert scales are routinely used to measure a participant's "opinions, beliefs, and attitudes" (DeVellis, 2003, p. 79). Each question on both scales had five response categories, ranging from *strongly disagree* to *strongly agree*, a typical

Likert- scale format (Streiner & Norman, 2008). The mean of all item scores is used as the scale score to standardize scores to the same range, given different numbers of items.

The six-item stigma scale and five-item barriers to care scale have been reported to be reliable instruments. The reliability of the stigma scale reported from previous studies are $\alpha = .91$ (Britt et al., 2011; Pietrzak, Johnson, Goldstein, Malley, & Southwick, 2009), $\alpha = .94$ (Britt et al., 2008), $\alpha = .90$ (Britt, 2000; Brown, Creel, Engel, Herrell, & Hoge, 2011), $\alpha = .95$ (Kim et al., 2010), $\alpha = .93$ (Wright, Cabrera, Adler, Bliese, & Hoge, 2009), and $\alpha = .90$ and .86 with repeated measurements (Adler, Bliese, McGurk, Hoge, & Castro, 2009). The reliability of the barriers to care scale reported are $\alpha = .90$ (Britt et al., 2011), $\alpha = .85$ (Britt et al., 2008), $\alpha = .86$ (Kim et al., 2010), $\alpha = .77$ (Brown et al., 2011), $\alpha = .75$ (Wright et al., 2009), and $\alpha = .74$ (Pietrzak et al., 2009). These reported reliability coefficients for the stigma and barriers to care scales are strong for the stigma scale and adequate for the barriers to care scale (Streiner & Norman, 2008).

The content validity of the stigma scale has been reported in the literature. Britt (2000) developed this instrument from the concepts of social distancing by Bogardus (1925), the examination of stigmatization by Goffman (1963), and studies focused on stigmatization of HIV-positive patients by Crandall, Glor, and Britt (1997) and Herek and Capitanio (1993). The content validity of the barriers to care scale has not been discussed in the literature.

Construct validity for the stigma and barriers to care scales has been evaluated through comparisons of groups expected to differ. In Britt's (2000) research, a military service member's responses were summed, and then group means were compared for military service members reporting or denying a psychological concern. Britt tested the

hypothesis that a military service member would experience greater stigma when he or she was evaluated with a psychological screening compared with a medical screening. Stigma scores were greater for individuals reporting a psychological problem, $t(511) = 13.8$, $p < .001$, and were greater for military service members completing a psychological questionnaire, $t(699) = -3.90$, $p < .001$, compared with military service members who were not being screened (Britt, 2000).

Another study provided hypothesis testing for both the stigma and barriers to care scales. In this study, Britt et al. (2008) tested the hypothesis that "perceived stigma and barriers to care regarding psychological treatment may be especially important for individuals experiencing high levels of stress in different areas of their life" (p. 318). A sample ($N = 3,648$) of soldiers completed a survey that included the stigma and barriers to care scales and work overload, depression, and PTSD scales to assess potential stressors (Britt et al., 2008). The stigma scale demonstrated statistically significant correlations with barriers to care ($r = .61$), work overload ($r = .25$), depression ($r = .36$), and PTSD ($r = .31$; Britt et al., 2008). The barriers to care scale demonstrated weak but statistically significant correlations with work overload ($r = .20$), depression ($r = .27$), and PTSD ($r = .21$; Britt et al., 2008). The investigators concluded that stigma and barriers to care are related to mental health symptoms, and individuals with these symptoms "were more likely to report stigma and barriers to care" (Britt et al., 2008, p. 329).

Data Analysis

IBM® SPSS® Statistics (v. 19) was used for the statistical analysis. Descriptive statistics included means, medians, frequencies, and percentages, as appropriate, to

characterize demographic status, military grade, deployment status, and questionnaire scores. Cronbach's alpha and Kuder-Richardson formula 20 (KR-20; as appropriate) for the stigma and barriers to care scales were also calculated.

Research Question #1

The first research question was: What are the perceived levels of stigma and barriers to accessing mental health services for Air Force nursing personnel? This question was answered by providing an analysis of the responses to the stigma and barriers to care scales. Descriptive statistics, including means, standard deviations, frequencies, and percentages, were calculated for both scales for the overall sample.

Research Question #2

The second research question was: Does military grade affect the perceived levels of stigma and barriers to accessing mental health services for Air Force nursing personnel? An answer to the second research question was achieved by calculating descriptive statistics and through hypothesis testing. Analysis included descriptive statistics for the stigma and barriers questions. The null hypotheses proposed that there were no significant differences between officer and enlisted perceptions of stigma and barriers to care associated with accessing mental health services. Rejection of one or both null hypotheses would suggest that differences existed between officer and enlisted perceptions beyond what would be expected by chance alone (i.e., in a population in which the null hypothesis was true).

Hypotheses

Hypothesis testing was accomplished through comparison of officer and enlisted perceptions using t tests, one-way ANOVA, an independent samples median test, and

Fisher's exact tests. The depth of statistical comparison for perceptions of stigma and barriers to care was dependent on the number of responses from officers, senior noncommissioned officers, noncommissioned officers, and junior enlisted nursing personnel. Because the number of enlisted personnel's responses in each enlisted category would not have afforded sufficient power to perform statistical testing with each enlisted category, all enlisted responses were treated as a single category. Additional analyses using t tests and ANOVA were also conducted to identify whether additional variables influenced perceptions of stigma and barriers to accessing mental health care.

Hypothesis #1. The first hypothesis was that no difference would be found between officer and enlisted Air Force nursing personnel's perceived levels of stigma associated with accessing mental health services.

Hypothesis #2. The second hypothesis was that no difference would be found between officer and enlisted Air Force nursing personnel in perceived levels of barriers to care associated with accessing mental health services.

Both hypotheses were tested using an independent *t* test to compare mean scores for officer and enlisted perceptions of stigma or barriers associated with accessing mental health care. For each participant, the mean item score was calculated. The means of the two groups were tested for a significant difference using a two-sample (independent groups) *t* test. The group means, standard deviations, test statistic, degrees of freedom, probability, comparison of means with standard deviation, and effect size (point-biserial *r*; Field, 2005) were reported.

Item-level analyses were conducted to compare response patterns to each item by group. In addition, items were dichotomized into "stigmatizing" (*strongly agree* or *agree*)

versus "nonstigmatizing" responses (*strongly disagree, disagree, neither agree nor disagree*). Comparisons between groups used χ^2 or Fisher exact tests as appropriate for differences in proportions between groups.

Additional Analyses

Exploratory analyses were conducted to examine possible differences in the two scales by gender, ethnicity, race, previous deployment history, or previously seeking mental health services.

Protection of Human Subjects

Because this research was deemed by the HRRC to involve minimal risk to participants and the data collection was anonymous, the study met requirements for exempt status review and approval. I met with potential participants prior to the beginning of the study to provide them with information regarding the study and its general purpose. Light refreshments were made available at those meetings, but because the survey was completely anonymous, there was no participation incentive. Although I am a Major in the Air Force Reserve, I was not in the chain of command of any of the potential participants. Participants were aware of this and therefore understood that they were free to determine whether or not to participate without consequence to their employment status or prospects.

Based on the anonymous survey research consent template (Appendix D) provided by the HRRC, informed consent was implied by the participant's active decision to complete the survey instrument. If a signed informed consent form were to have been signed and stored, this document would have served as the only document that could identify a participant as having completed the survey.

To access the survey, the participants chose to open the URL link provided in the e-mailed survey information and anonymous consent letter. On entering the REDCap™ survey, participants had to choose to agree to continue to the first survey screen. If they chose not to agree, they exited the survey and were thanked for their time. Those who agreed to participate were informed that they could choose not to answer any question.

The participants were able to complete the instrument in whatever location or by whatever device (e.g., computer, tablet, smart phone) they deemed appropriate. This information was conveyed by the investigator to potential participants and the chief nurse's staff during information sessions. Participants could choose to complete the survey instrument at his or her work place, or they could forward the e-mail to another account for completion at another location or a later time.

It was possible that a participant's reflection on past experiences or memories may have been uncomfortable. Due to this possibility, all participants were provided with contact information for seeking confidential mental health support, if needed. Because of the anonymous nature of the survey and web administration, it was not possible to determine whether any participants sought such support.

Data collection was anonymous. No potential identifiers were on the questionnaire, and the demographic information collected was aggregated to decrease the risk that any participant could be identified. A copy of the questionnaire was offered to participants on request; however, no participant requested a copy. Until the study is closed, survey data will remain stored on the secure REDCap™ server at the UNM HSC CTSC, where it is accessible to the investigator and chair of this dissertation committee. After closure, data will be archived in a manner consistent with CTSC policies.

CHAPTER 4

RESULTS

All Air Force officer and enlisted nursing personnel assigned or attached to the Medical Wing who were present for duty during the time of the study had an opportunity to participate. A sample of 211 (111 officers, 98 enlisted, and 2 of unknown grade) Air Force nursing personnel completed all or part of the survey instrument.

During the initial review of the data set for missing information, it was noted that 246 records were downloaded from REDCap™ into IBM® SPSS® Statistics. A total of 209 responses had complete information, and 37 had missing data. Of the responses with missing data, 27 had no data, eight had demographic information only, and two had demographic information and responses to the stigma scale only. In the eight responses with demographic information only, no significant difference was noted in age, ethnicity, or past access to mental health services; 6 respondents were male, and 2 were female. The responses with no data or demographic information only ($n = 35$) were withheld from further analysis. The responses with demographic information and responses to the stigma scale only were retained for the data analysis.

Demographic Characteristics

Table 4-1 provides a comparison of the demographic characteristics between the entire Medical Wing and the study sample. Compared with the entire Wing, the study sample contained a substantially higher percentage of White respondents (66.7% vs. 79.6%, respectively) and a lower percentage of Black respondents (19.8% vs. 10.9%, respectively). The survey respondents were also more likely to be 30 years of age or older

Table 4-1

Comparison of Medical Wing and Sample Demographic Characteristics

Characteristic	Medical Wing Population ($N = 1,089$)	Study Sample ($n = 211$)
Gender		
Male	436 (40.0%)	73 (34.6%)
Female	653 (60.0%)	138 (65.4%)
Age, years		
18-24	332 (30.5%)	42 (19.9%)
25-29	279 (25.6%)	39 (18.5%)
30-39	312 (28.7%)	70 (33.2%)
≥40	166 (15.2%)	60 (28.4%)
Marital Status		
Married	584 (53.6%)	122 (57.8%)
Not Married	505 (46.4%)	88 (41.7%)
Race		
American Indian or Native Alaskan	5 (0.5%)	5 (2.4%)
Asian	43 (3.9%)	9 (4.3%)
Black	216 (19.8%)	23 (10.9%)
Native Hawaiian or Pacific Islander	20 (1.8%)	4 (1.9%)
White	726 (66.7%)	168 (79.6%)
Unknown	52 (4.8%)	2 (0.9%)
More than 1	27 (2.5%)	n/a
Ethnicity		
Hispanic or Latino/Latina[a]	-	50 (23.7%)
Not Hispanic or Latino/Latina	-	159 (75.9%)
Unknown	-	2 (0.9%)
Military Grade		
Officer	403 (37.0%)	111 (52.6%)
Enlisted	686 (63.0%)	98 (46.5%)
Unknown	n/a	2 (0.9%)

Note. Adapted from "*Current 46XX, 4N0, and 4N1 Demographics Report,*" by Air Force Medical Wing, 2012.
[a]Information regarding ethnicity was not available.

(43.9% vs. 61.6%, respectively). A higher percentage of officers participated in the study

compared with the percentage of officers in the Wing (52.6% vs. 37%, respectively).

Because of the small number of responses for each enlisted military grade subcategory,

all enlisted responses were placed into a single category of "enlisted personnel."

  Nearly half of the sample indicated that they had previously accessed mental

health services (Table 4-2). A majority of the sample had deployed for a contingency

operation since 9/11. Of those who had previously deployed, the majority reported having

deployed to a geographical location where an expeditionary medal was awarded.

Table 4-2

Previous Access to Mental Health Services and Deployment of Sample

Questions	Yes	No	Missing
Have you ever accessed mental health services?	102 (48.3%)	106 (50.2%)	3 (1.4%)
Have you ever been deployed for a contingency operation since 9/11/2001?	130 (61.6%)	81 (38.4%)	-
Were you awarded an expeditionary medal for a contingency operation deployment? ($n = 130$)[a]	109 (83.8%)	21 (16.2%)	-

Note. $N = 211$, except as noted.
[a]Only applies to respondents who reported a deployment since 9/11/2001.

Perceptions of Stigma and Barriers to Care

  The first research question was: What are the perceived levels of stigma and

barriers to accessing mental health services for Air Force nursing personnel? This

question was answered by analyzing descriptive statistics of the sample's responses to the

Britt and Hoge et al. stigma and barriers to care scales. A moderate positive correlation (r

$= .357, p < .001$) between the stigma and barriers to care scales was present. This level of

correlation indicated the scales had only 13% shared variance between them.

Perceived Stigma Associated With Accessing Mental Health Services

To determine the participants' perceptions of stigma associated with accessing mental health services, responses to the overall scale and each stigma item were examined. The stigma scale demonstrated strong internal consistency (Cronbach's α = .89), with no improvement in the reliability of the scale if any item was removed. For unknown reasons, 1 participant did not provide a response to the fifth item of the scale, and 2 participants did not provide a response to the sixth item.

The grand mean for the stigma scale was 3.1 (SD = 0.97), indicating an average response consistent with *neither agree nor disagree* for the overall scale. Next, responses to each stigma item were examined. Table 4-3 reports the mean, standard deviation, and median for each item in the stigma scale. The mean for each stigma item indicated a typical response of *neither agree nor disagree*; however, the standard deviation, median, and frequencies of the responses (Figure 4-1) for each item showed differences between the items. More than 50% of respondents agreed or strongly agreed with *Members of my unit might have less confidence in me* or *My unit leadership might treat me differently*,

Table 4-3

Britt and Hoge et al. Stigma Scale Mean, SD, and Median

Item	N		Mean	SD	Median
	Valid	Missing			
Item 1. It would be too embarrassing.	211	0	2.8	1.21	3
Item 2. It would harm my career.	211	0	3.2	1.26	3
Item 3. Members of my unit might have less confidence in me.	211	0	3.3	1.17	4
Item 4. My unit leadership might treat me differently.	211	0	3.4	1.19	4
Item 5. My leaders would blame me for the problem.	210	1	2.6	1.09	2
Item 6. I would be seen as weak.	209	2	3.1	1.26	3

Note. SD = standard deviation.

It would be too embarrassing.
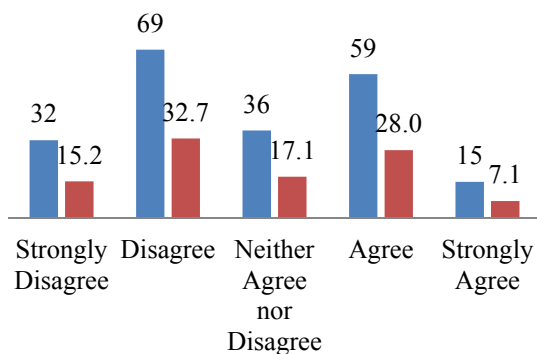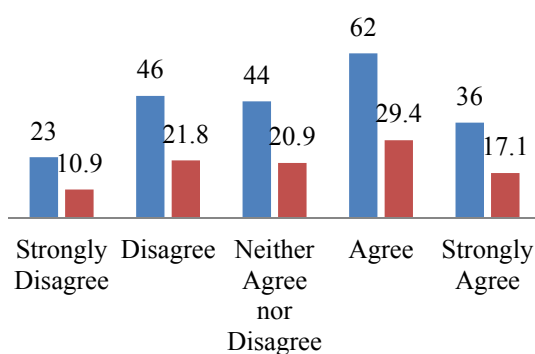
It would harm my career.

Members of my unit might have less confidence in me.

My unit leadership might treat me differently.

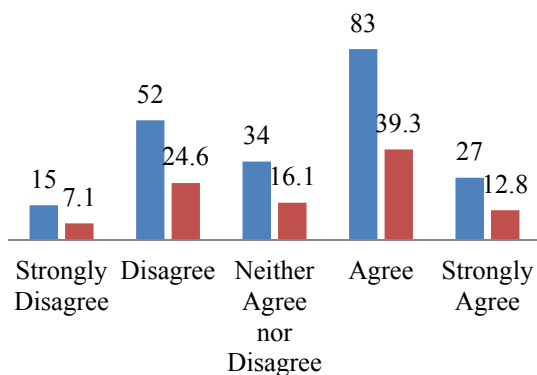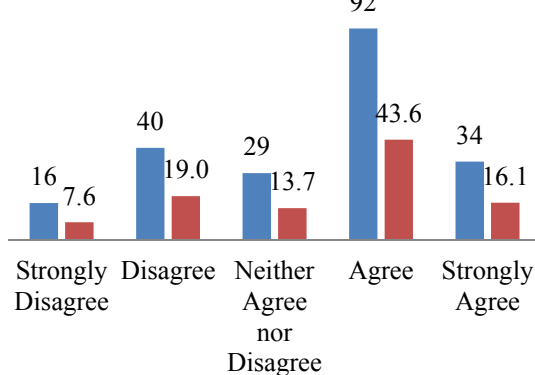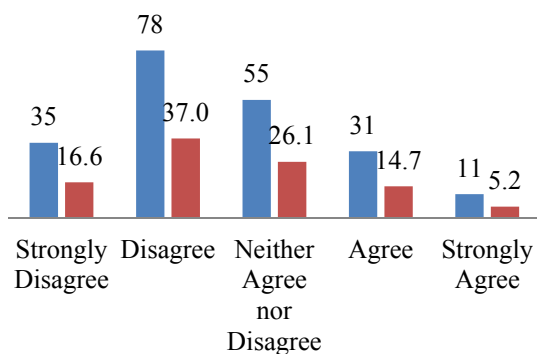**My leaders would blame me for the problem.**

I would be seen as weak.
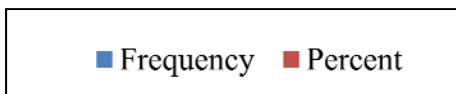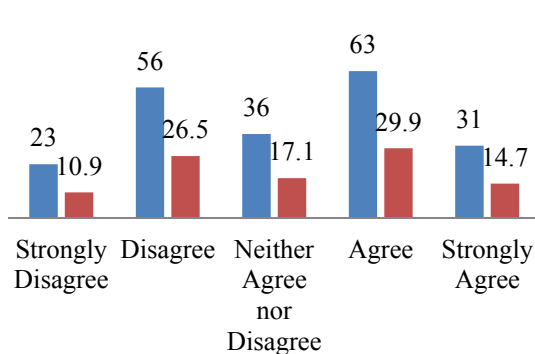
Figure 4-1. Frequencies and percentages for responses to the Britt and Hoge et al. stigma scale.

whereas fewer than 40% agreed or strongly agreed with *It would be too embarrassing* or

My leaders would blame me for the problem (Figure 4-1).

Responses were dichotomized as either "Stigmatizing" or "Not Stigmatizing"

(Table 4-4) due to the wide distribution of responses and to allow comparison with

previous studies that dichotomized responses to the stigma scale. A response of *strongly*

disagree, *disagree*, and *neither agree nor disagree* represented a perception of not

stigmatizing, and agree and strongly agree responses were considered to represent a

perception of stigma (Gorman et al., 2011; Hoge et al., 2004; Kim et al., 2010; Kim et al.,

2011).

Table 4-4

Dichotomized Responses to the Britt and Hoge et al. Stigma Scale

Item	Stigmatizing (%)	Not Stigmatizing (%)
Item 1. It would be too embarrassing.	35.1	64.9
Item 2. It would harm my career.	46.4	53.6
Item 3. Members of my unit might have less confidence in me.	52.1	47.9
Item 4. My unit leadership might treat me differently.	59.7	40.3
Item 5. My leaders would blame me for the problem. ($n = 210$)	19.9	79.6
Item 6. I would be seen as weak. ($n = 209$)	44.5	54.5

Note. $N = 211$, except as noted.

The dichotomized stigma scale also demonstrated acceptable reliability (KR-20 =

.82), with no improvement in the scale's reliability if any items were removed. With the

exception of item five, at least one third of respondents agreed that they would be

stigmatized in some manner if they chose to seek treatment for a potential mental health

concern.

Not all members of the sample perceived stigma. Table 4-5 illustrates the number,

percentage, and cumulative percentage of items participants agreed were stigmatizing.

Approximately 26% of the sample did not perceive stigma with any of the dichotomized items; however, approximately 11% of the sample perceived stigma with all six stigma scale items. More than half (51.7%) perceived three or more items as stigmatizing.

Table 4-5

Cumulative Number of Items Identified as Stigmatizing

Number of Items Identified as Stigmatized	Frequency	Percent	Cumulative Percent
None	55	26.1	26.1
One Item	25	11.8	37.9
Two Items	22	10.4	48.3
Three Items	33	15.6	64.0
Four Items	27	12.8	76.8
Five Items	26	12.3	89.1
Six Items	23	10.9	100.0
Total	211	100.0	

Perceived Barriers to Accessing Mental Health Services

Responses to the overall barriers to care scale and each barrier to care item were examined to assess the participants' perceptions of barriers to accessing mental health services. Two participants did not provide a response to the first and second items of the scale, 3 did not provide a response to the third item, and 5 did not provide a response to the fourth and fifth items. The barriers to care scale demonstrated poor reliability (Cronbach's α =.66); no significant improvement in the scale's reliability would have been accomplished by removing any of the item(s). Because of the poor reliability of the barriers to care scale in this sample, the results must be viewed with caution. The grand mean for the barriers to care scale was 2.1 (SD = 0.65), which represented an average response of *disagree* for the overall scale.

Table 4-6 reports the mean, standard deviation, and median for each of the items in the barriers to care scale. The means for the barrier to care items indicated the typical response for items one, two, three, and five was *disagree* and *neither agree nor disagre*e for item four.

Table 4-6

Britt and Hoge et al. Barriers to Care Scale's Mean, SD, and Median

Item	N		Mean	SD	Median
	Valid	Missing			
Item 1. I don't know where to get help.	209	2	1.7	.80	2
Item 2. I don't have adequate transportation.	209	2	1.4	.55	1
Item 3. It is difficult to schedule an appointment.	208	3	2.4	1.17	2
Item 4. There would be difficulty getting time off work for treatment.	206	5	2.9	1.33	3
Item 5. Mental health care costs too much money.	206	5	2.0	.95	2

Note. SD= standard deviation.

Responses were dichotomized as either a "Barrier to Care" or "No Barrier to Care" (Table 4-7) due to the wide distribution of the items and to allow comparison with previous studies that dichotomized responses to the barriers to care scale. *Strongly disagree, disagree, and neither agree nor disagree* responses represented a perception of

Table 4-7

Dichotomized Responses to the Britt and Hoge et al. Barriers to Care Scale

Item[a]	Barrier to Care (%)	No Barrier to Care (%)
Item 1. I don't know where to get help.	4.3	94.8
Item 2. I don't have adequate transportation.	0.5	98.6
Item 3. It is difficult to schedule an appointment.	21.3	77.3
Item 4. There would be difficulty getting time off work for treatment.	41.2	56.4
Item 5. Mental health care costs too much money.	4.3	93.4

[a]All items contained missing data.

no barrier to care, and *agree* and *strongly agree* responses were considered to represent a barrier to care (Gorman et al., 2011; Hoge et al., 2004; Kim et al. 2011; Kim et al., 2010).

The dichotomized barriers to care scale also demonstrated poor reliability (KR-20 = .44), with no significant improvement in the scale's reliability if any items were removed. Finding help, having transportation, and paying for mental health services were not frequently identified barriers to accessing mental health services. Scheduling an appointment was identified as a barrier to accessing care, but it was difficult for only approximately one fifth of the respondents. Difficulty getting time off from work was the most frequently identified barrier (> 40% agreement); fewer than one quarter of the sample agreed with any other item. The frequencies and percentages for each response category within each item (Figure 4-2) showed that responses to all items were widely distributed.

Not all participants perceived barriers to accessing mental health services. Table 4-8 illustrates the cumulative number of items participants agreed were barriers. In contrast to the stigma scale, more than half of the sample did not perceive any of the dichotomized items as a barrier to care, and no participant agreed that more than three of

Table 4-8

Cumulative Number of Items Identified as a Barrier to Care

Number of Items Identified as a Barrier to Care	Frequency	Percent	Cumulative Percent
None	108	51.2	51.2
One Item	57	27.0	78.2
Two Items	38	18.0	96.2
Three Items	6	2.8	99.1
Total	209	99.1	

I dont know where to get help.

I dont have adequate transportation.

It is difficult to schedule an appointment.

There would be difficulty getting time off work for treatment.

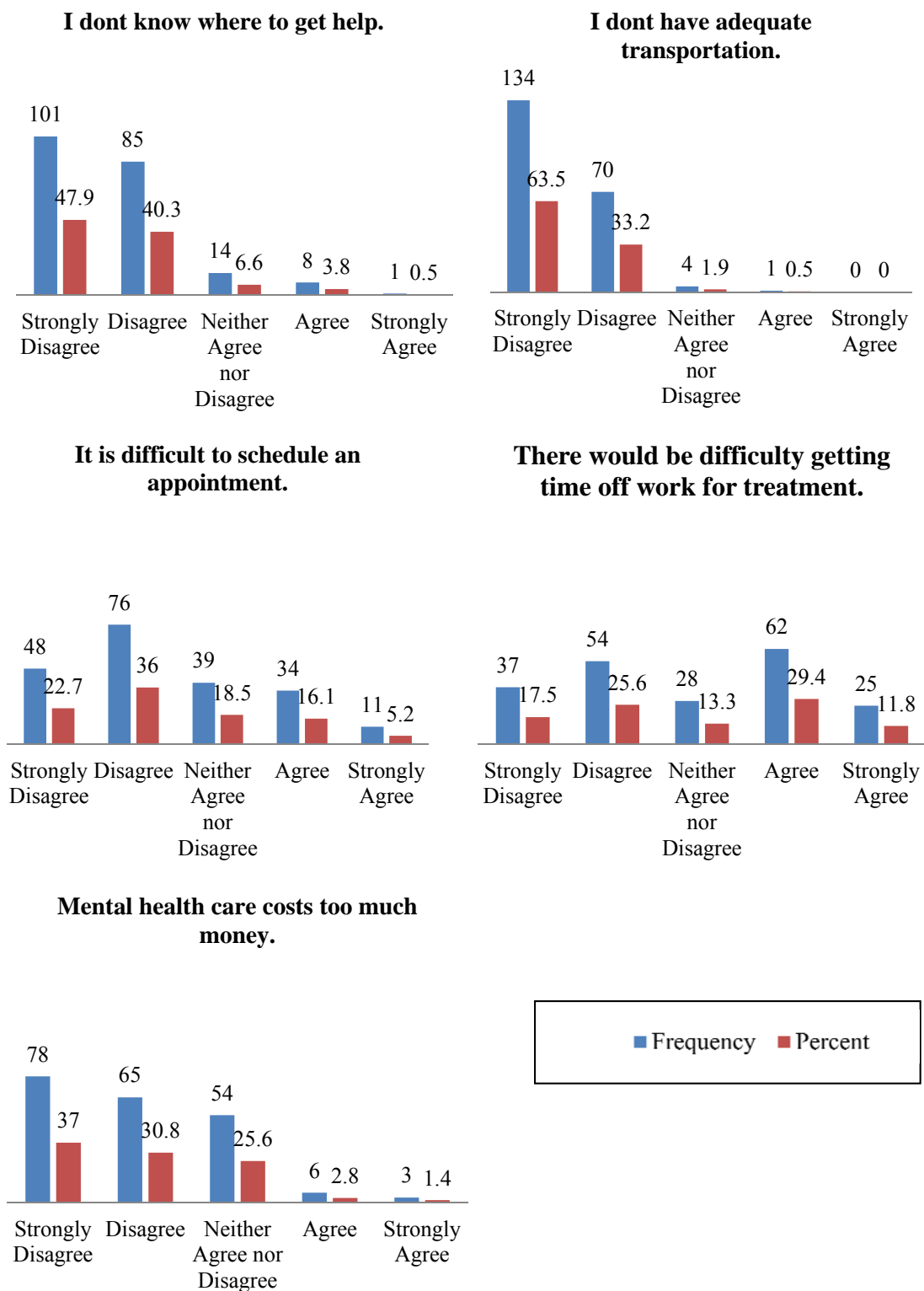
Mental health care costs too much money.

Figure 4-2. Frequencies and percentages for responses to the Britt and Hoge et al. barriers to care scale.

the items were barriers to accessing mental health services. Approximately 3% of the sample perceived three items as barriers to care.

Military Grade and Perceptions of Stigma and Barriers to Care

The second research question was: Does military grade affect the perceived levels of stigma and barriers to accessing mental health services for Air Force nursing personnel? To answer this question, two null hypotheses were tested to determine whether a significant difference existed between officer and enlisted perceptions of stigma and barriers to care associated with accessing mental health services.

Military Grade and Perceptions of Stigma

An analysis of descriptive statistics and an independent samples *t* test were used to determine whether a significant difference existed between officer and enlisted Air Force nursing personnel's perceptions of stigma regarding accessing mental health services. Prior to performing the *t* test, I determined whether the assumptions for using the test were met.

Testing of assumptions. The stigma scale was at an interval level of measurement and was reliable. Assumptions of independence of groups and errors were met. Descriptive statistics for the sample as a whole (Table 4-9) indicated that the Stigma scale was slightly negatively skewed and moderately platykurtic, with no outliers evident on a boxplot. A *z*-score was calculated for skewness and kurtosis by dividing the respective statistic by its standard error (Field, 2005). The *z*-score for skewness was −1.4, and the *z*-score for kurtosis was −1.5. Normal (Q-Q) probability plots were consistent with the assumption of normality in both groups; therefore, assumptions for an independent samples *t* test were satisfied.

The assumption that the variances of the independent groups (officer and enlisted) were roughly equal was satisfied (Levine test, $F = 1.74$, $p = .19$), and equal variances were assumed. Based on the above analysis, all of the assumptions required for utilizing an independent samples t test were met.

Table 4-9

Descriptive Statistics for the Stigma Scale

Statistic	Sample	Officers	Enlisted
Mean	3.1	3.2	2.9
Median	3.2	3.3	3
Variance	0.94	1.00	0.82
SD	0.97	1.00	0.91
SE Mean	0.067	0.092	0.092
Skewness	–0.24	–0.29	–0.37
SE Skewness	0.17	0.23	0.24
Kurtosis	–0.5	–0.62	–0.29
SE Kurtosis	0.33	0.46	0.48

Note. SD = standard deviation; SE = standard error.

T test and results. The reported level of stigma for Air Force nursing personnel of different military grades was significantly different, $t(df = 207) = -2.42$, $p = .016$. On average, officers reported a higher level of stigma associated with potentially accessing mental health services ($M = 3.21$, $SD = 1.0$) compared with the mean response from enlisted personnel ($M = 2.89$, $SD = .09$). However, this mean difference (95% CI for difference = 0.06-0.58) represented a small effect size ($r = .17$), approximately 2.9% of score variance.

Analysis of individual stigma items. Additional analysis was performed to determine whether a difference existed in the dichotomized responses of each stigma item based on military grade. An independent samples median test was used to determine whether a difference between the median numbers of items identified by officers and

enlisted personnel as stigmatizing was present. For the sample as a whole, the median

number of items perceived as stigmatizing was three. The median number of items

perceived as stigmatizing by officers was three, compared with two for enlisted

personnel, $\chi^2(df = 1) = 5.5, p = .019$.

A Fisher's exact test was used to test differences by military grade in whether or

not individual items were perceived as stigmatizing. Between officer and enlisted

personnel, there were significant differences in the relative percentage of stigmatizing

versus nonstigmatizing responses for the items *It would be too embarrassing* (42.3% vs.

27.6%, respectively), *It would harm my career* (55.0% vs. 37.8%, respectively), and *My

leaders would blame me for the problem* (26.4% vs. 13.3%, respectively; Figure 4-3).

There was no significant difference in percentages of officers and enlisted considering the

item stigmatizing for the remaining items (*Members of my unit might have less

confidence in me*; *My unit leadership might treat me differently*; *I would be seen as weak*;

Figure 4-4).

Summary and conclusion for hypothesis #1. The analysis in this section

demonstrated that a statistically significant difference existed in the mean Stigma scale

scores based on military grade; however, this difference did not meet the set criteria for a

minimally important difference. Further examination of the individual items of the

Stigma scale revealed that officers on average classified one more scale item as

stigmatizing when compared with the enlisted personnel. In addition, officers were

significantly more likely than enlisted to report three of the Stigma scale items as

stigmatizing. Based on the foregoing analyses, the null hypothesis that there would be no

Item 1
It would be too embarrassing

Officers vs. Enlisted (p= .03)

Item 2
It would harm my career

Officers vs. Enlisted (p< .02)

Item 5
My leaders would blame me for the problem

Officers vs. Enlisted (p= .024)
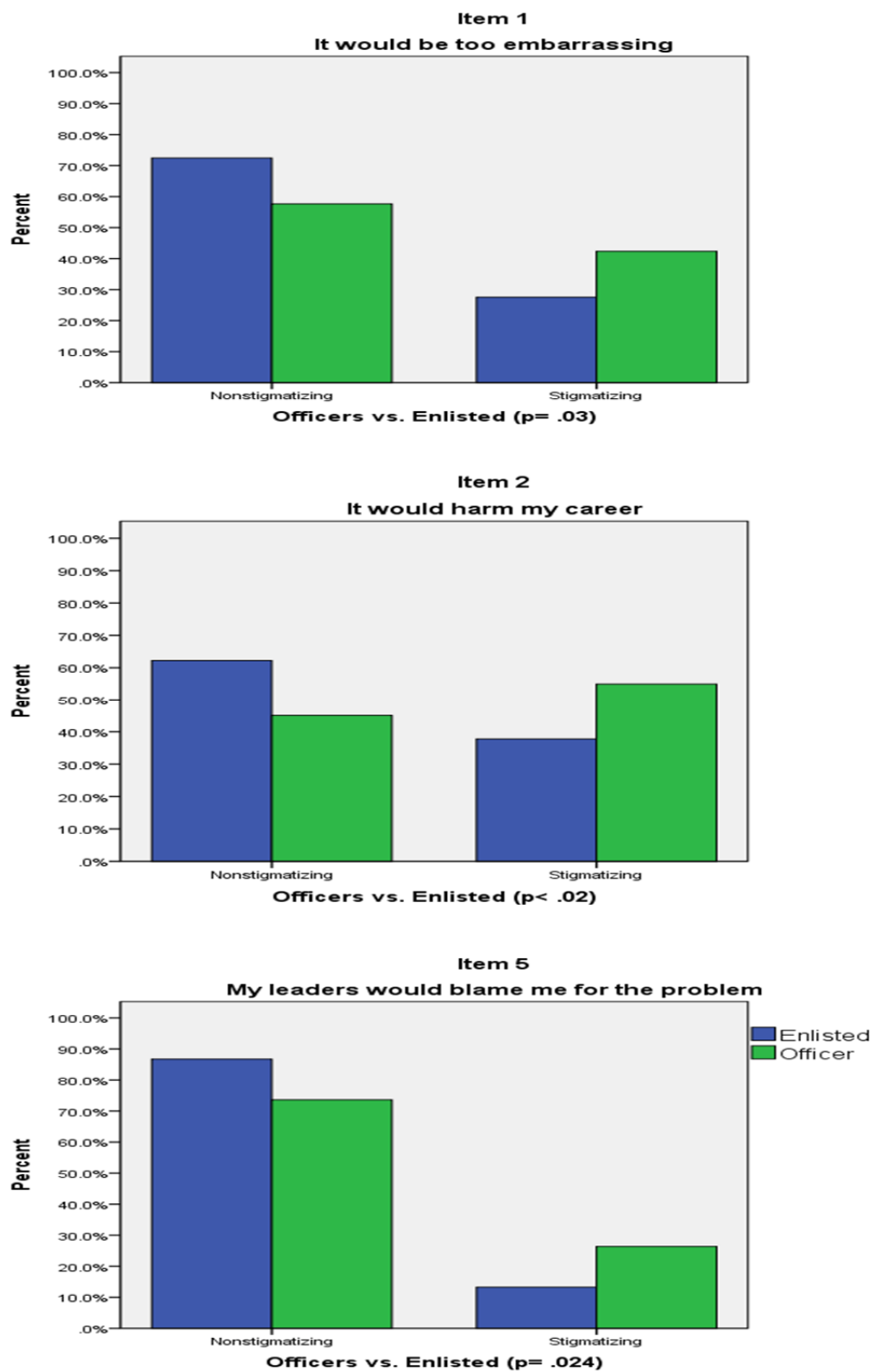
Figure 4-3. Britt and Hoge et al. stigma items with significant differences in percent agreement of stigmatizing versus nonstigmatizing responses between officers and enlisted Air Force nursing personnel.

Item 3
Members of my unit might have less confidence in me

Item 4
My unit leadership might treat me differently
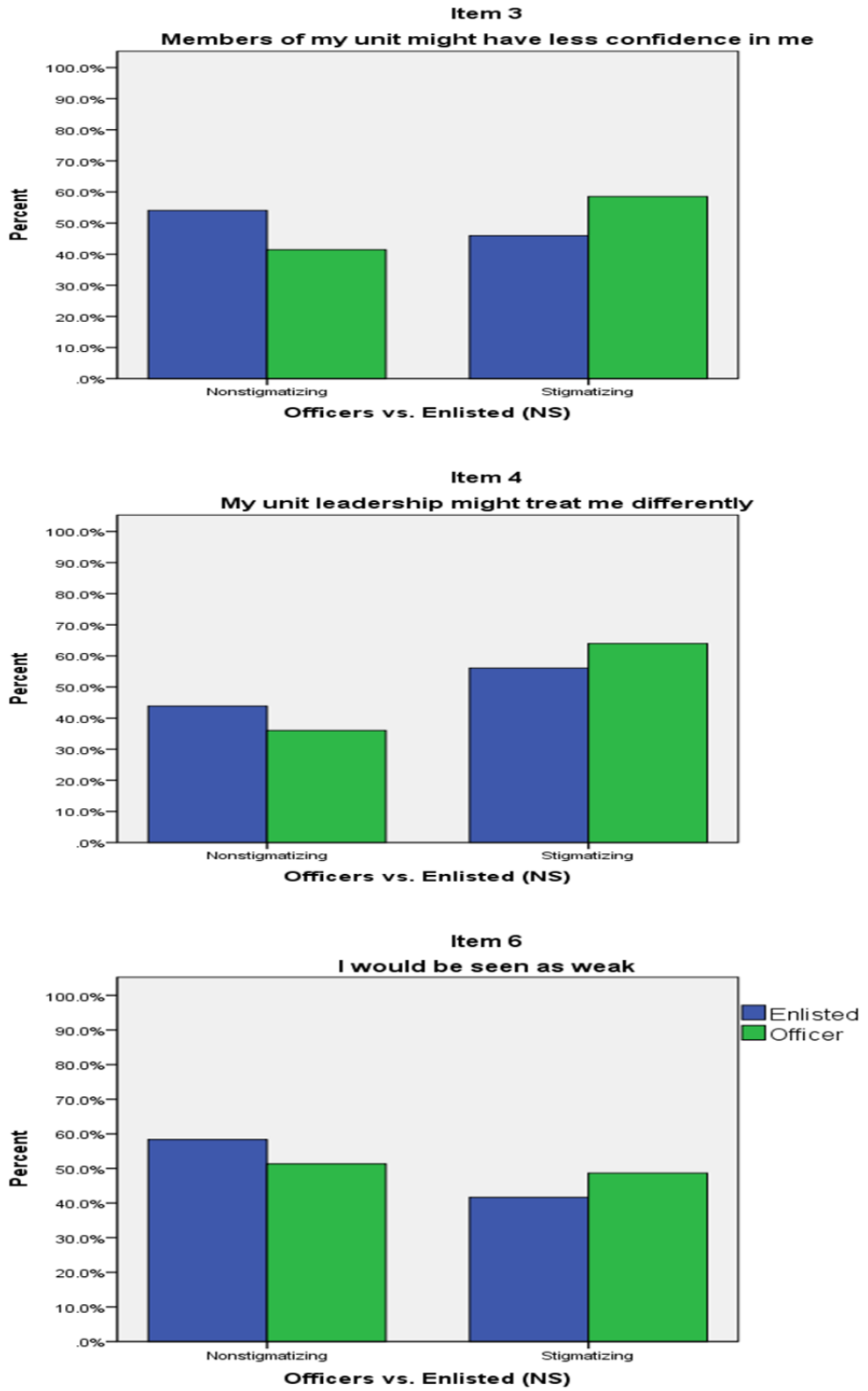
Item 6
I would be seen as weak

Figure 4-4. Britt and Hoge et al. stigma items without significant differences between officers and enlisted Air Force nursing personnel.

difference between officer and enlisted Air Force nursing personnel in perceived levels of stigma associated with accessing mental health services was rejected.

Military Grade and Perceptions of Barriers to Care

An analysis of descriptive statistics and an independent samples *t* test were used to determine whether a significant difference existed between officer and enlisted Air Force nursing personnel's perceptions of barriers to accessing mental health services. Prior to performing the *t* test, I determined whether the assumptions for using the test were met.

Testing of assumptions. The barriers to care scale was at an interval level of measurement, but demonstrated poor internal consistency. Assumptions of independence of groups and errors were met. Descriptive statistics for the sample as a whole (Table 4-10) indicated that the barriers to care scale was positively skewed and was platykurtic. A *z*-score was calculated for skewness and kurtosis by dividing the respective statistic by its standard error (Field, 2005). The *z*-score of skewness was .39, and the *z*-score of kurtosis was –1.09. Normal (Q-Q) probability plots were consistent with the assumption of

Table 4-10

Descriptive Statistics for the Barriers to Care Scale

Statistic	Sample	Officers	Enlisted
Mean	2.1	2.2	1.98
Median	2	2.2	2
Variance	0.42	0.44	0.38
SD	0.65	0.66	0.62
SE Mean	0.04	0.06	0.06
Skewness	0.07	–0.14	0.28
SE Skewness	0.17	0.23	0.25
Kurtosis	–0.37	–0.57	0.2
SE Kurtosis	0.34	0.46	0.49

Note. SD = standard deviation; SE = standard error.

normality in both groups; therefore, assumptions for an independent samples *t* test were satisfied.

The assumption that the variances of the independent groups (officer and enlisted) were roughly equal was satisfied (Levine test, $F = 1.17$, $p = .28$), and equal variances were assumed. Based on the above analysis, all of the assumptions required for using a *t* test were met.

T test and results. The reported level of barriers to care for Air Force nursing personnel of different military grades was significantly different, $t(df = 206) = -2.19$, $p = .03$. On average, officers reported a higher level of barriers to potentially accessing mental health services ($M = 2.17$, $SD = .06$) compared with the average response from enlisted personnel ($M = 1.98$, $SD = .06$). This difference represented a small effect ($r = .15$); this corresponded to approximately 2.3% of score variance. In addition, the overall mean score in both groups was consistent with disagreeing that the issues identified in the items were barriers.

Summary and conclusion for hypothesis #2. Because of the poor reliability of scale scores (whether continuous or dichotomous) for the barriers to care scale, further analysis of differences in each barrier to care item by military grade was not performed. A statistically significant difference existed in the mean barriers to care scale scores according to military grade. Based on this analysis, the second hypothesis, that there would be no difference between officer and enlisted Air Force nursing personnel in perceived levels of barriers to care associated with accessing mental health services, was rejected. However, the effect size for the difference was small.

Additional Analyses

Additional analysis was conducted to determine whether any other demographic variables affected perceptions of stigma or barriers to accessing mental health services. *T* tests demonstrated no statistically significant difference in the mean responses to the stigma scale based on gender, $t(209) = -1.50$, $p = .135$; ethnicity, $t(207) = -.86$, $p = .388$; or previous deployment for a contingency operation, $t(209) = .98$, $p = .326$. Testing for differences was performed to compare data reported from individuals identifying themselves as White with those identified as non-White. This decision was made due to the large number (approximately 80%) of individuals in the sample identifying themselves as White. The mean stigma scale responses of individuals identified as White compared with non-Whites demonstrated no statistically significant difference, $t(209) = .03$, $p=.976$. Finally, a one-way ANOVA showed no statistically significant difference in the mean responses to the stigma scale based on age group, $F(3,207) = .57$, $p =.638$.

The reported level of stigma of Air Force nursing personnel based on previous access to mental health services was significantly different, $t(197.01) = -2.3$, $p=.022$. On average, individuals who had accessed mental health services reported a higher level of stigma ($M = 3.21$, $SD = 0.83$) compared with those who did not report accessing mental health services ($M = 2.9$, $SD = 1.07$). The mean difference, -0.31 (95% CI= $-.04$ to $-.57$) points, corresponded to a small effect size, point-biserial $r = .16$.

T tests demonstrated no statistically significant difference in the mean responses to the barriers to care scale based on gender, $t(207) = -.59$, $p=.556$; ethnicity, $t(205) = -1.68$, $p =.095$; White/non-White race, $t(207) = -.73$, $p=.467$; previous use of mental health services, $t(199.1) = .49$, $p=.621$; or deployment for a contingency operation,

t(142.6) = 1.19, p =.236. A one-way ANOVA showed no statistically significant difference in the mean responses to the barriers to care scale based on age group, Brown-Forsythe (3,165.2) = .28, p = .844.

CHAPTER 5

DISCUSSION

This descriptive comparative study provided the first exploration of Air Force nursing personnel's perceptions of stigma and barriers associated with accessing mental health services. Participants' responses to the Britt (2000) and Hoge et al. (2004) stigma and barriers to care scales provided an overall understanding of the degree of stigma and barriers to accessing mental health services perceived by this sample of Air Force nursing personnel.

As seen in previous studies, the stigma scale continued to display adequate reliability in both continuous and dichotomous forms. Averaged over all items, stigma scale responses indicated an overall response of *neither disagree nor agree*. However, responses to individual scale items demonstrated that a majority of respondents were concerned that if they were to seek mental health services, they might be treated differently by unit leaders and peers in their units might have less confidence in them. More than 40% believed there might be adverse career consequences, or others might view them as weak. More than one third felt it would be personally embarrassing to seek mental health treatment.

In contrast, the barriers to care scale did not have adequate internal consistency with this sample for either the mean scale score or for a score based on dichotomized items. The average response to the barriers to care scale showed overall disagreement that the items represented barriers to mental health treatment, and only one item, *There would be difficulty getting time off work for treatment*, was viewed as a barrier by more than one quarter of respondents. Given the overall low mean score and low number of items

viewed as barriers, the poor reliability in the present sample was likely due to a floor effect.

A comparison of officer and enlisted responses to the stigma and barriers to care scales demonstrated that officer nursing personnel reported significantly higher levels of perceived stigma and barriers to accessing mental health services compared with enlisted personnel, although the effect size for the observed difference in mean scores was smaller than the threshold for a meaningful difference used in the power analysis. In contrast, the study was potentially underpowered to detect a significant difference in the proportions of stigmatizing responses between officer and enlisted nursing personnel under the assumptions modeled in the power analysis, but statistically significant and potentially meaningful (> 12%) differences between officers and enlisted personnel were actually found for three of the stigma items: *It would harm my career, It would be too embarrassing*, and *My leaders would blame me for the problem*. For all three of those items, the concern with stigma was significantly greater among officers than among enlisted nursing personnel.

Study Findings and the Modified Theory of Planned Behavior

In this section, the study's findings are discussed within the framework of Britt et al.'s (2011) Modified Theory of Planned Behavior for Military Service Member Treatment Seeking and compared with previous findings reported in the literature.

Perceived Stigma and the Modified Theory of Planned Behavior

In this study, participants' responses showed that a significant level of perceived stigma was present, which was surprising, given the level of professional civilian and military education provided to Air Force medical personnel and their role in providing

health care services for military service members and their beneficiaries. In Britt et al.'s (2011) Modified Theory of Planned Behavior (Figure 2-2), perceived stigma directly influences a service member's attitude toward seeking treatment. As demonstrated in the review of the literature (Hoge et al., 2004; Lapierre et al., 2007), attitude plays a key role in the service member's intention to seek treatment. The findings from this study supported the theory's illustration of perceived stigma's influence on the Airman's attitude toward treatment seeking. The reports of perceived levels of stigma associated with accessing mental health services also suggests that perceived stigma influences beliefs about problems and treatment and subjective norms.

The Modified Theory of Planned Behavior depicts the influence of perceived stigma on a service member's attitude toward treatment seeking (Britt et al., 2011). The responses of the sample to stigma scale items (Tables 4-3, 4-4, and 4-5) indicated that a substantial proportion of service members had concerns that seeking mental health treatment would be discrediting, embarrassing, cause harm to their careers, and cause decreased confidence in their ability to perform assigned duties. Officers, compared with enlisted personnel, were significantly more likely to report perceptions that seeking mental health treatment would be embarrassing (42.3% vs. 27.6%, respectively), harm their career (55.0% vs. 37.8%, respectively), and cause leaders to blame them for a problem (26.4% vs. 13.3%, respectively).

The responses of this sample to the stigma scale items indicated the influence of stigma on beliefs about problems and treatment and subjective norms. This potential influence of perceived stigma was not represented in Britt et al.'s (2011) Modified Theory of Planned Behavior. According to Britt et al. (2011), a service member's beliefs

about problems and treatment are partially based on the extent that peers and leaders will support the decision to seek treatment. Subjective norms are based on the individual's understanding of peers' and leaders' reactions to the behavior of treatment seeking (Ajzen, 1991: Britt et al., 2011).

A large percentage of the sample expressed agreement that treatment seeking would result in peers having less confidence in the individual (52.1%), being treated differently by leaders (59.7%), and being perceived as weak (44.5%). These perceptions of peer and leader attitudes toward treatment seeking would undoubtedly influence a service member's beliefs about a mental health concern and potential treatment, as well as his or her subjective norms regarding treatment seeking. Because of the cumulative influence of perceived stigma on a service member's attitudes toward treatment seeking, beliefs about problems and treatment and subjective norms, efforts to decrease perceptions of stigma are essential to increase a service member's intention to seek necessary mental health treatment.

Barriers to Care and the Modified Theory of Planned Behavior

Britt et al.'s (2011) Modified Theory of Planned Behavior depicts the influence of barriers to care on a service member's intention to seek treatment. Barriers to care are factors, other than stigma, that interfere with or negatively influence a service member's perceived ability to seek treatment (Britt et al., 2011; Hoge et al., 2004). Barriers to care influence an individual's perception of control over treatment seeking based on actual resources available, opportunities that exist, and actual or perceived barriers that must be overcome (Ajzen, 1991, 2012).

On the whole, this study's findings were congruent with the theory's representation that barriers to care influence the level of difficulty an individual relates to seeking treatment. However, the findings pertaining to barriers must be interpreted cautiously, given the poor reliability of the barriers scale.

Airmen expressed a perception of positive control regarding treatment seeking based on their available resources and opportunities. More than half of the sample (51.2%) did not perceive a barrier to care, and no participant agreed that more than three items were barriers to accessing mental health services. The analysis of the barriers to care items showed that participants knew where to get help, had adequate transportation, and had access to affordable mental health services. These perceptions of positive control may have been due to the study setting. Because the Medical Wing was located in a metropolitan setting, it is likely that Airmen had access to transportation to travel to and from work and that sufficient mental health services were available within the city or outlying areas. Additionally, due to the extensive civilian and military medical resources available within the setting, it is probable that service members could use their Tricare medical insurance to access providers.

Airmen expressed a potential lack of control over seeking treatment due to actual or perceived barriers only in regard to scheduling an appointment (21.3%) and having time off to attend an appointment (41.2%). It is possible that these barriers could be due to a wide range of challenges, ranging from a heavy patient workload due to the large military population served by the Medical Wing, to the possibility that requesting time off from work and scheduling an appointment may be stigmatizing if a peer or supervisor was aware of the reason for the absence from work. Regardless of the cause, these

perceived barriers could potentially exert a negative influence over the intention of a service member to seek treatment.

Comparison of Sample's Self-Report of Perceived Stigma With Past Research

As demonstrated in Table 5-1, the sample's dichotomized responses to the stigma scale were comparable to the range of responses reported by past studies of combatants that had screened positive for a mental health disorder after a deployment for a contingency operation.

Table 5-1

Comparison of Dichotomized Stigmatizing Responses for Stigma Scale: Sample Versus Review of

Literature

Stigma Items	Sample Responses as Stigmatizing	Stigmatizing Responses from ROL: Service Members With a Positive Screen for a Mental Health Disorder[a]
It would be too embarrassing.	35.1%	16-41%
It would harm my career.	46.4%	28-50%
Members of my unit might have less confidence in me.	52.1%	47-59%
My unit leadership might treat me differently.	59.7%	34-63%
My leaders would blame me for the problem.	19.9%	10-51%
I would be seen as weak.	44.5%	33-65%

Note. ROL= review of literature.
[a]Adapted from "Combat Duty in Iraq and Afghanistan, Mental Health Problems, and Barriers to Care," by Hoge et al., 2004, *The New England Journal of Medicine, 351,* p. 21; "The Intensity of Combat and Behavioral Health Status," by Castro and McGurk, 2007, *Traumatology, 13,* p. 18; "Do Stigma and Other Perceived Barriers to Mental Health Care Differ Across Armed Forces?" by Gould et al. , 2010, *Journal of the Royal Society of Medicine, 103*, p. 153; "Stigma, Barriers to care, and Use of Mental Health Services Among Active Duty and National Guard Soldiers After Combat," by Kim et al., 2010, *Psychiatric Services, 61*, p. 585; "Stigma, Negative Attitudes About Treatment, and Utilization of Mental Health Care Among Soldiers," by Kim et al., 2011, *Military Psychology, 23*, p. 73; and "National Guard Families After Combat: Mental health, Use of Mental Health Services, and Perceived Treatment Barriers," by Gorman et al., 2011, *Psychiatric Services, 62*, p. 32.

Although these perceptions of stigma were expressed, a key finding was that most of the participants did not perceive that they would be blamed for a mental health disorder. This perception was consistent with the finding by Pescosolido et al. (2010) that

Americans have expressed an increased understanding of the neurobiological causes of

mental illness. However, the responses to the remaining stigma items also reflected

findings that a significant proportion of Americans remain unwilling to work with,

socialize with, or befriend an individual with a mental illness (Pescosolido et al., 2010).

A significant difference was found when officer and enlisted nursing personnel's

responses to the stigma scale were compared. Officers were significantly more likely to

report perceptions of stigma for the scale items *It would be too embarrassing, It would*

harm my career, and *My leaders would blame me for the problem.* Additionally, officers

replied that a median number of three stigma items were stigmatizing compared with a

median of two items by enlisted personnel. These findings stand in contrast to the study

by Gibbs et al. (2011) that reported junior enlisted soldiers were more likely to express

that seeking mental health services would affect their career progression and personal

image. Additionally, because officer nursing personnel are required to earn a

baccalaureate degree in nursing (which would include didactic and clinical experiences

with mental health nursing care) prior to commissioning in the Air Force, the

significantly higher report of stigmatizing responses to each stigma scale item from

officers was not expected.

Comparison of Sample's Self-Report of Barriers to Care With Past Research

The survey participants, in general, perceived either no or few barriers to

accessing mental health services. More than half (51.2%) of the participants replied that

they perceived no barriers to accessing mental health services. Forty-five percent of the

participants identified one or two barriers to accessing mental health services, and only

2.8% identified three barriers to accessing care. Compared with previous studies (Castro

& McGurk, 2007; Gorman et al., 2011; Gould et al., 2010; Hoge, et al., 2004; Kim et al,

2010; Kim et al., 2011), a smaller percentage of respondents in this sample reported

perceptions of a barrier for the dichotomized items *I don't know where to get help, I don't*

have adequate transportation, and Mental health care costs too much money (Table 5-2).

Only two items (*It is difficult to schedule an appointment* and *There would be difficulty*

getting time off work for treatment) were within the ranges reported in previous studies of

combatants who had screened positive for a mental health disorder after a deployment for

a contingency operation (Table 5-2).

Table 5-2

Comparison of Dichotomized Barrier to Care Responses for Stigma Scale: Sample Versus Review of

Literature

Barrier to Care Items	Sample Responses as Barriers to Care	Barrier Responses from ROL: Service Members With a Positive Screen for a Mental Health Disorder[a]
I don't know where to get help.	4.3%	7-22%
I don't have adequate transportation.	0.5%	5-18%
It is difficult to schedule an appointment.	21.3%	18-45%
There would be difficulty getting time off work for treatment.	41.2%	20-55%
Mental health care costs too much money.	4.3%	13-25%

Note. ROL = review of literature.
[a]Adapted from "The Intensity of Combat and Behavioral Health Status," by Castro, and McGurk, 2007, *Traumatology, 13,* p. 18; "Do Stigma and Other Perceived Barriers to Mental Health Care Differ Across Armed Forces?" by Gould et al., 2010, *Journal of the Royal Society of Medicine, 103*, p. 153; "Combat Duty in Iraq and Afghanistan, Mental Health Problems, and Barriers to Care," by Hoge et al., 2004, *The New England Journal of Medicine, 351,* p. 21; "Stigma, Barriers to Care, and Use of Mental Health Services Among Active Duty and National Guard Soldiers After Combat," by Kim et al., 2010, *Psychiatric Services, 61*, p. 585; "Stigma, Negative Attitudes About Treatment, and Utilization of Mental Health Care Among Soldiers," by Kim et al., 2011, *Military Psychology, 23*, p. 73; and "National Guard Families After Combat: Mental Health, Use of Mental Health Services, and Perceived Treatment Barriers," by Gorman et al., 2011, *Psychiatric Services, 62*, p. 32.

Limitations of the Study

This study had several limitations. A general limitation was that a convenience

sample was used. Convenience sampling increased the possibility of self-selection bias

and representativeness (Burns & Grove, 2009). Another limitation was that this study

surveyed Air Force nursing personnel in one wing only. Therefore, the results cannot be generalized to the entire Air Force nursing population (Burns & Grove, 2009). Replication of the study with multiple medical wings using a random sampling technique would improve the understanding of stigma and barriers to accessing mental health services perceived by Air Force nursing personnel.

The poor reliability of the barriers to care scale and an inadequate sample size to provide sufficient statistical power were also limitations of the study. Although previous studies had reported adequate scale reliability, the barriers to care scale demonstrated poor internal consistency in both continuous and dichotomous forms. The poor reliability of the scale means that any differences between officer and enlisted nursing personnel's reported perceptions of barriers to accessing mental health services must be interpreted cautiously. The sample size was underpowered to detect a significant difference in the proportions of stigmatizing responses expressed by officer and enlisted nursing personnel. Although statistically significant differences were found when comparing the proportions of stigmatizing responses by officer and enlisted nursing personnel for stigma scale items, less than 80% power was attained to detect a difference in the proportions due to the sample size. The decreased power may have increased the probability of a Type II error, a failure to reject a false null hypothesis (Cohen, 1988) for three of the comparisons of proportions.

The Medical Wing selected was in the process of reorganizing personnel to implement joint (multi-military service branch) staffing at multiple facilities. This reorganization provided an initial challenge to contacting all nursing personnel, and it is possible this reorganization prevented some members of the organizations from being

contacted. A final limitation of the study was that, to protect confidentiality, participants were not asked whether they themselves had been diagnosed with a mental health disorder. Past research has demonstrated that if a service member has screened positive for a mental illness, that individual will perceive greater levels of stigma and barriers to accessing mental health services (Castro & McGurk, 2007; Gorman et al., 2011; Gould et al., 2010; Hoge, et al., 2004; Kim et al., 2011; Kim et al., 2010).

Threats to Validity

Because of the study's limitations and potential threats to validity, all findings were specific to the sample studied. Potential threats to validity included selection and ambiguous temporal precedence. Selection was a threat to internal validity because random sampling was not used in this investigation (Shadish et al., 2002). Because convenience sampling was used, participants may have been biased by strong feelings regarding mental illness. In an attempt to minimize selection bias, the investigator worked with the chief nurse and supporting staff of the Medical Wing to encourage all nursing personnel to participate in the study. The lack of randomization in this study also represented a threat to external validity (Shadish et al., 2002).

A second threat to internal validity was ambiguous temporal precedence. Ambiguous temporal precedence existed because the time of the variable's change was uncertain (Shadish et al., 2002). Because the study design and measurement of stigma and barriers to care were performed on one occasion, significant differences in stigma and barriers to care responses by officer and enlisted personnel had an uncertain chronology.

Implications for Future Research

This study adds to previous evidence that perceptions of stigma and barriers to care continue to persist in the U.S. Armed Forces. Because this was the first known study to investigate perceptions of stigma and barriers to accessing mental health services in a sample of military nurses, replication and extension of the study would be useful. A quantitative methodology could be repeated with a larger, randomized sample of Air Force nursing personnel from multiple wings. If possible, the inclusion of other allied health personnel, with Air Force and other military branches, would provide a better understanding of uniformed healthcare professionals' perceptions as they provide health care services for service members and their beneficiaries. Replicated studies could be cross-sectional, or a longitudinal design could be used to assess perceptions over time.

The stigma scale may also be used as a pretest/posttest to measure the effectiveness of Wingmen Stand-Down presentations. These presentations are provided to Airmen each year as an effort to promote positive behaviors and suicide prevention awareness. Perceptions of stigma may be assessed prior to the presentations and at a set interval after the presentations. A change in perceptions of stigma after the presentation would help to evaluate the effectiveness of the education provided.

The use of qualitative methodology would also be beneficial to further explore stigma and barriers to accessing mental health services perceived by military service members. Qualitative research with allied health personnel would provide insight into the feelings, beliefs, and experiences that influence military service members' perceptions of stigma and barriers to accessing mental health services. Also, qualitative research may help determine how military allied health personnel's perceptions of stigma and barriers

to mental health services affect the care that they provide military service members and their families.

Final Thoughts

Military service members with greater perceptions of stigma and barriers to accessing mental health services may also be more likely to positively screen for a mental health disorder and be less likely to seek help for a mental health concern. Britt et al. (2011) performed a study to investigate the descriptiveness of the Modified Theory of Planned Behavior for Treatment Seeking (Figure 2-2). The investigators reported a negative correlation between stigma ($r = -0.3$) and barriers to care ($r = -0.35$) with perceived control to seek treatment for a mental health concern (Britt et al., 2011). Another study demonstrated that perceptions of stigma are positively correlated with depression ($r = 0.2$; Britt et al., 2008). Because perceptions of stigma continue to be expressed by military service members, including Air Force nursing personnel, military leadership should continue to provide service members with education regarding the benefits of seeking mental health treatment and continue anti-stigma campaigns.

Military service members should be provided education about the potential benefits of self-referral for the treatment of a mental health concern. Communicating that self-referral could increase confidentiality and decrease negative career impact may positively influence military service members to self-refer themselves for mental health concerns. In a study of active-duty Airmen ($N = 1,068$), Rowan & Campise (2006) reported that the majority of Airmen who sought treatment were self-referred. If an Airman was referred for treatment at the encouragement of a superior or as an order from a commander, his or her treatment was significantly less likely to be confidential. The

Airmen's unit was contacted (per military requirements) regarding the service member's treatment 75% of the time if an Airmen was referred by his or her superiors and 100% of the time if the Airman was directed to seek treatment by a commander (Rowan & Campise, 2006). Additionally, Airmen referred for behavioral health treatment by a superior or by the order of a commander were more likely (5% and 39%, respectively) to have a change in career status or be recommended for discharge compared with self-referred Airmen (3%; Rowan & Campise).

Military leaders should also continue an aggressive strategy to decrease stigma associated with accessing mental health services. Both civilian and uniformed military leaders of all service branches must ensure that they unambiguously communicate the importance of seeking mental health treatment for service member health and overall force preparedness. In a discussion of methods to decrease stigma associated with seeking treatment for a mental health disorder, Shepard (2007) stated:

> Leaders at all levels should speak out clearly, decisively, and frequently on the importance of mental health as a coequal factor with physical health as a determinant of duty fitness. Leaders must discourage disparaging comments about Soldiers who seek mental health treatment with the same emphasis that they would discourage disparaging sexual or racial remarks about fellow Soldiers, and recognize these comments as similarly harmful verbal self-attacks on our own Soldiers. (p. 23)

Methods to decrease perceptions of stigma may also include unit-embedded mental health teams and an active anti-stigma campaign. The Army utilizes Combat Operational Stress Reaction teams that are embedded with units to meet with soldiers

after the occurrence of stressful events (Shepard, 2007). Although the effectiveness of these teams has not been fully demonstrated, their use allows mental health interventions to occur within a theater of operations. Ninety-five percent of soldiers who were seen by these teams for symptoms requiring a referral were able to return to their units (Shepard, 2007). Increased utilization of these types of teams may increase the availability of in-theater mental health treatment and decrease stigma and barriers to accessing care.

An active anti-stigma campaign may also improve the likelihood that a service member will seek treatment for a mental health concern. Ben-Zeev, Corrigan, Britt, and Langford (2012) stated that an anti-stigma campaign should include the components of protest, education, and contact. The protest component focuses on "the inherent injustices of prejudice and discrimination" (Ben-Zeev et al., 2012, p. 4) to decrease the practice of stigmatizing mental illness. Protest may be accomplished through public service announcements and groups of service members that campaign against stereotypes of mental illness (Ben-Zeev et al., 2012). Education would be used to counteract stereotypes and to provide facts regarding mental illness (Ben-Zeev et al., 2012). Education may occur through various forms of media, but could also include mental health professionals providing small-group education for military units (Ben-Zeev et al., 2012). Finally, contact involves the interaction between military service members with a mental illness and service members without a mental illness (Ben-Zeev et al., 2012). These interactions may be provided through print and electronic media or in person by respected leaders (both officer and enlisted; Ben-Zeev et al., 2012).

Summary

Since September 11, 2001, U.S. military service members have been deployed for contingency operations in 54 countries and geographical regions (Air Force Personnel Command, n.d.). Many veterans of these operations have and will continue to suffer from mental health injuries. Because past investigations of stigma and barriers to accessing mental health services have focused on combatants returning from contingency operations, this descriptive-comparative study was undertaken to examine stigma and barriers to accessing mental health services perceived by officer and enlisted Air Force nursing personnel.

The study demonstrated that the proportion of this sample of Air Force nursing personnel reporting stigmatizing responses was within the range reported in the literature for soldiers and marines who screened positive for a mental health disorder after a deployment to Afghanistan or Iraq. The most frequently perceived barrier to accessing mental health services in this sample was difficulty getting time off from work to seek treatment. Because perceptions of stigma and barriers to accessing mental health services endure, the civilian and uniformed military leadership must continue to ensure that education regarding the benefits of early access to mental health services is provided and an aggressive anti-stigma campaign is undertaken and sustained.

APPENDICES

Appendix A

Permission to Reprint Figure 2-1, the Modified Theory of Planned Behavior

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Title: The Theory of Planned Behavior and Reserve Component Veteran Treatment Seeking

Author: Thomas W. Britt, Elizabeth A. Bennett, Michael Crabtree et al.

Publication: Military Psychology

Publisher: Taylor & Francis

Date: Jan 1, 2011

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Appendix B

Recruitment Handout

We'd Like to Know Your Views

Researchers from the University of New Mexico (UNM) College of Nursing in Albuquerque, NM are conducting a study to assess perceived levels of stigma and barriers associated with accessing mental health services among officers and enlisted nursing personnel in the U. S. Air Force. You will be receiving an e-mail within the upcoming weeks with a link to a confidential electronic survey about your views having to do with accessing mental health services.

Who are the researchers? Stephen Hernandez, PhD Candidate, RN and Mark Parshall, PhD, RN, Associate Professor, UNM College of Nursing

What is the purpose of this research? To understand perceptions / opinions of Air Force nursing personnel about stigma and barriers associated with accessing mental health services.

What does the research involve? If you agree to participate, you will be asked to complete a 20 question survey to provide general information about yourself and your views about stigma and barriers associated with accessing mental health services. The information that you provide will be confidential. You will not be asked to provide your name or any identifying information.

What if I have never used mental health services? You can participate in this survey regardless of whether or not you have ever used mental health services.

Do I have to participate in this research? No. Participation is voluntary, and you do not have to take part if you do not want to. There will be no record of who does or does not participate.

Will I be exposed to any experiment or treatment? No.

What are the benefits of participating in this research? Participation will not benefit you directly. Similar past studies have involved soldiers and marine combatants, but not personnel who support combatants. Your responses to the survey will help us understand if nursing personnel feel comfortable about or deterred from accessing mental health services.

Are there any risks to participating? There is always a potential risk that answering survey questions may make some participants uncomfortable. You may decline to answer or stop participating at any time.

Will my privacy and confidentiality be protected? Yes. The research has undergone rigorous ethical and peer review. Data will be maintained securely using an anonymous, encrypted electronic survey system for every participant. Results of the study may be published, but only in ways that would not identify any individual participant in any way.

We will stop by at scheduled times to discuss this research with you and to answer your questions that you may have. Thank you for your time and consideration!

We are also available by phone or e-mail to answer any questions you may have before deciding about whether to participate. If you have any questions about the study please contact
Major Stephen Hernandez, (318) 617-0020, hernandezs@nsula.edu
or
Mark Parshall, PhD, RN: (505) 272-4540, mparshall@salud.unm.edu

UNM HRRC 11-561

Appendix C

Informational Session Transcript

Good morning/afternoon,

My name is Stephen Hernandez. I am a PhD Candidate at the University of New Mexico (UNM) College of Nursing. I also serve as a critical care nurse in the Air Force Reserve at Barksdale Air Force Base in Louisiana. Thank you for allowing me to speak with you today about my research study. The purpose of this study is to examine the beliefs and attitudes of Air Force nursing personnel associated with stigma and barriers to accessing mental health services. The study is voluntary and involves a brief, anonymous, online survey.

All 46XXs and 4Ns assigned or attached to the XX Medical Wing will receive an e-mail request within the next few weeks to participate in the study. The e-mail will provide you information about the study, contact information for myself or others if you have any concerns about the research, and a link to the online survey. If you choose to volunteer to participate by clicking on the link, you will be redirected to an electronic survey and asked to answer a total of 20 questions: 9 questions provide summary demographic information; 11 questions assess your agreement or disagreement with statements about stigma and barriers to accessing mental health services.

The survey should take about five to ten minutes to complete. You can complete the survey at work, or you can forward the information to a personal e-mail account if you would like to complete the survey away from work. After the initial e-mail, I will send e-mail reminders with the same information to all potential participants. Because participation is anonymous, we have no way to track whether or not any individual has participated. If you have already completed the survey already, feel free to delete or ignore the follow-up e-mail. If you have not completed the survey, please consider participating.

Your involvement in the study is voluntary, and you may choose not to participate. Your decision to participate or to decline to participate will have no effect on your military career or status. There are no names or identifying information associated with this survey. You can refuse to answer any of the questions.

If you volunteer to complete the survey, your responses will be collected, managed, and stored on the secure REDCap™ server at the UNM Health Sciences Center Clinical and Translational Science Center. This information will be accessible only to myself and my dissertation chairman, Mark Parshall, PhD, RN, UNM College of Nursing. Three years after the research is completed, all data will be deleted from the REDCap™ server. If the results of the research are published, results will be presented in summary form only. No individual will be identifiable based upon his or her answers.

Although this research will not provide an immediate benefit to those who participate, my goal is to assess the extent of perceptions of stigma and barriers to care among Air Force nursing personnel. There are no known risks in this study, but it is always possible with any survey that some individuals may experience discomfort answering some questions. If you experience any discomfort while completing this survey, contact information for confidential counseling services will be provided in the e-mail that provides a link to the survey. These confidential resources can also be found on the Air Force Portal or www.militaryonesource.com websites.

Thank you again for your consideration and your time. Are there any questions about the study that anyone would like to ask?

Appendix D

Informed Consent Cover Letter for Anonymous Surveys

University of New Mexico Health Sciences Center
Informed Consent Cover Letter for Anonymous Surveys

STUDY TITLE
Stigma and Barriers to Accessing Mental Health Services Perceived by Air Force Nursing
Personnel

Stephen Hernandez, PhD Candidate, RN from the College of Nursing at the University of New Mexico, is conducting a research study. The purpose of the study is to examine stigma and barriers to accessing mental health services perceived by officer and enlisted Air Force nursing personnel. You are being asked to volunteer for participation in this study because you are a 46XX, 4N0, or 4N1 assigned or attached to the XX Medical Wing.

Your participation will involve completing a secure, anonymous electronic survey via the research electronic data capture system (REDCap™) at the University of New Mexico Health Science Center Clinical and Translational Science Center. This survey can be completed at work, or this e-mail may be forwarded to a personal e-mail account for you to complete at a time and place of your choosing. The survey should take about 5 to 10 minutes to complete. Your involvement in the study is voluntary, and you may choose not to participate. Your decision to participate or to decline to participate will have no effect on your military career or status. The study is completely anonymous. There are no names or identifying information requested on this survey, and there will be *no* record of or links to e-mail or IP addresses. The survey includes questions such as "Using the scale provided, rate each of the possible concerns that might affect your decision to seek treatment for a potential psychological problem: It would be too embarrassing, It would harm my career, I don't know where to get help.". You can refuse to answer any of the questions.

Although this proposed research will not provide any immediate benefit to those who choose to participate, the goal is to assess the extent of the presence or absence of perceptions of stigma and barriers to care perceived by Air Force nursing personnel. The knowledge gained from the survey may lead to improvements in the quality of care offered by Air Force nursing personnel. There are no known risks in this study, but it is possible that some individuals may experience discomfort when answering some survey questions. If you experience any discomfort while completing this survey, confidential counseling services may be accessed by phone or face-to-face counseling can be scheduled by calling 1-800-342-9647, or anonymous on-line counseling services may be accessed at
http://www.militaryonesource.com/MOS/About/CounselingServices.aspx

All data will be kept for 3 years in a encrypted, password protected data file maintained on a secure, dedicated server at the University of New Mexico Health Science Center Clinical and Translational Science Center and then destroyed. The findings from this project will provide

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information on the perceptions of stigma and barriers to accessing mental health services. These perceptions have been examined in soldiers and marines in previous studies, but this survey will be the first study to examine these factors in Air Force nursing personnel. Any published results will be presented in summary form only.

If you have any questions about this research project, please feel free to call Stephen Hernandez by phone at (318) 617-0020 or by e-mail at hernandezs@nsula.edu., or his dissertation committee chairperson, Dr. Mark Parshall, can be contacted by phone at (505) 272-4540 or by e-mail at mparshall@salud.unm.edu. If you have questions regarding your legal rights as a research subject, you may call the UNMHSC Office of Human Research Protections at (505) 272-1129.

By clicking on the following link to survey, you will be agreeing to participate in the above described research study. The survey will open when you click on http://insert a link.com

Thank you for your consideration and your time.

Sincerely,

Stephen Hernandez
PhD Candidate, RN
Major, USAFR, NC

Appendix E

Survey Instrument

Stigma and Barriers to Accessing Mental Health Services Perceived by Air Force Nursing Personnel

This study is completely anonymous. There are no names or identifying information requested in this survey, and there will be no record of or links to e-mail or IP addresses. The survey includes questions such as:

"Using the scale provided, rate each of the possible concerns that might affect your decision to seek treatment for a potential psychological problem:
It would be too embarrassing,
It would harm my career,
I don't know where to get help."

You can refuse to answer any of the questions.

Although this research will not provide any immediate benefit to those who choose to participate, the goal is to assess the extent of the presence or absence of perceptions of stigma and barriers to care perceived by Air Force nursing personnel. The knowledge gained from the survey may lead to improvements in the quality of care offered by Air Force nursing personnel. There are no known risks in this study, but it is possible that some individuals may experience discomfort when answering some survey questions. If you experience any discomfort while completing this survey, confidential counseling services may be accessed by phone or face-to-face counseling can be scheduled by calling 1-800-342-9647, or anonymous on-line counseling services may be accessed at http://www.militaryonesource.com/MOS/About/CounselingServices.aspx

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By clicking on "yes", you are agreeing to participate in the research study. Please click "no" if you wish to exit from the survey at this time.

☐ Yes
☐ No

Please answer the following questions as they apply to you.

What is your gender?
☐ Male
☐ Female

What is your age?
☐ 18 to 24 years
☐ 25 to 29 years
☐ 30 to 39 years
☐ 40 or above

What is your current marital status?
☐ Married
☐ Not married

What is your ethnicity?
☐ Hispanic or Latino / Latina
☐ Not Hispanic or Latino / Latina

What is your race?
☐ American Indian / Alaska Native
☐ Asian
☐ Black
☐ Native Hawaiian / Pacific Islander
☐ White
(You may check more than one if applicable)

Have you ever accessed mental health services?
☐ Yes
☐ No

What is your military grade?
☐ E1 to E4
☐ E5 to E6
☐ E7 to E9
☐ Officer

Have you ever been deployed for a contingency operation since 9/11/2001?
☐ Yes
☐ No

Were you awarded an expeditionary medal for a contingency operation deployment?
☐ Yes
☐ No

Using the scale provided, please rate how much you agree or disagree with each of the possible concerns that might affect your decision to seek treatment for a potential psychological problem.

It would be too embarrassing.

☐ Strongly Disagree   ☐ Disagree   ☐ Neither Agree nor Disagree   ☐ Agree   ☐ Strongly Agree

It would harm my career.

☐ Strongly Disagree   ☐ Disagree   ☐ Neither Agree nor Disagree   ☐ Agree   ☐ Strongly Agree

Members of my unit might have less confidence in me.

☐ Strongly Disagree   ☐ Disagree   ☐ Neither Agree nor Disagree   ☐ Agree   ☐ Strongly Agree

My unit leadership might treat me differently.

☐ Strongly Disagree   ☐ Disagree   ☐ Neither Agree nor Disagree   ☐ Agree   ☐ Strongly Agree

My leaders would blame me for the problem.

☐ Strongly Disagree   ☐ Disagree   ☐ Neither Agree nor Disagree   ☐ Agree   ☐ Strongly Agree

I would be seen as weak.

☐ Strongly Disagree   ☐ Disagree   ☐ Neither Agree nor Disagree   ☐ Agree   ☐ Strongly Agree

Using the scale provided, please rate how much you agree or disagree with each of the possible concerns that might affect your decision to seek treatment for a potential psychological problem.

I don't know where to get help.

☐ Strongly Disagree   ☐ Disagree   ☐ Neither Agree nor Disagree   ☐ Agree   ☐ Strongly Agree

I don't have adequate transportation.

☐ Strongly Disagree   ☐ Disagree   ☐ Neither Agree nor Disagree   ☐ Agree   ☐ Strongly Agree

It is difficult to schedule an appointment.

☐ Strongly Disagree   ☐ Disagree   ☐ Neither Agree nor Disagree   ☐ Agree   ☐ Strongly Agree

There would be difficulty getting time off work for treatment.

☐ Strongly Disagree   ☐ Disagree   ☐ Neither Agree nor Disagree   ☐ Agree   ☐ Strongly Agree

Mental health care costs too much money.

☐ Strongly Disagree   ☐ Disagree   ☐ Neither Agree nor Disagree   ☐ Agree   ☐ Strongly Agree

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