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Shannon Exley

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**Gender-Based Stigma, Perceived Stress, and Anxiety among Military Women in a
Predominantly Male Training Environment**

Shannon L. Exley, ENS MSC USN

Uniformed Services University

**Thesis submitted to the Faculty of the
Medical and Clinical Psychology Graduate Program
Uniformed Services University of the Health Sciences
In partial fulfilment of the requirements for the degree of
Masters of Science 2022**



UNIFORMED SERVICES UNIVERSITY, SCHOOL OF MEDICINE GRADUATE PROGRAMS
Graduate Education Office (A 1045), 4301 Jones Bridge Road, Bethesda, MD 20814



April 4, 2022

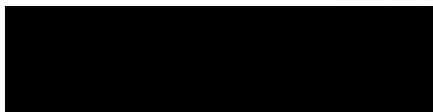
APPROVAL SHEET

Title of Thesis: **Gender-Based Stigma, Perceived Stress, and Anxiety among Military Women in a Predominantly Male Training Environment**

Name of Candidate: **Shannon Lea Exley, Master of Science in Medical and Clinical Psychology**

04/04/2022

THESIS AND ABSTRACT APPROVED:



4/7/2022

Dr. Natasha Schvey
DEPARTMENT OF MEDICAL AND CLINICAL PSYCHOLOGY
Thesis Advisor



4/4/2022

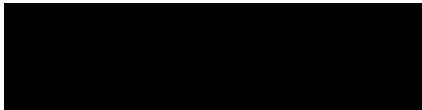
Dr. Tracy Sbrocco
DEPARTMENT OF MEDICAL AND CLINICAL PSYCHOLOGY
Committee Member

DE LA MOTTE.SARAH.J.1374336831 Digitally signed by DE LA MOTTE.SARAH.J.1374336831
Date: 2022.04.07 14:11:16 -06'00'

Dr. Sarah de la Motte
DEPARTMENT OF MILITARY AND EMERGENCY MEDICINE
Committee Member

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Shannon Lea Exley

Clinical Psychology, Department of Medical & Clinical Psychology

Uniformed Services University

04 APR 2022

ABSTRACT

Gender-Based Stigma, Perceived Stress, and Anxiety among Military Women in a Predominantly Male Training Environment

Shannon Lea Exley, BA, 2022

Thesis directed by: Natasha Schvey, Ph.D., Department of Medical & Clinical Psychology

Abstract: Individuals affected by stigma tend to experience excess stress during their lifetime, contributing to poorer physical and mental health outcomes. The U.S military has been historically restricted to males and is presently male-dominated, yet no studies to date have evaluated gender-based stigma experienced by females in the context of the military. It was hypothesized that female Marine officers at The Basic School (TBS) Basic Officer Course (BOC), a predominantly male military training environment, who reported gender-based stigma would report greater perceived stress and anxiety. In addition, it was hypothesized that coping would mediate this putative association. Resilience was also hypothesized to moderate this relationship. Participants completed self-report survey measures at the conclusion of TBS BOC training, and linear regressions were used to examine associations between stigma, perceived stress, and anxiety. A majority of participants reported at least one experience of gender-based stigma during their time in the military. There was no significant association between the presence of stigma and perceived stress or anxiety. Secondary analyses indicated significant associations between gender-based stigma when assessed both continuously

and dichotomously and greater odds of reporting symptoms of anxiety. Examinations of coping style as a mediator and resilience as a moderator also did not yield significant results. Experiences of gender-based stigma may be common among military women, and these may be associated with greater odds of reporting anxiety. Longitudinal examinations of experiences of intersectional stigma and mental health are needed to fully discern the relationship and the multiple levels of stigma individuals may experience.

Keywords: Stigma, Gender-based Stigma, Stress, Anxiety, Coping style, Resilience

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CHAPTER 1: Introduction

STIGMA

Stigma (Table 1), defined as the devaluing or discrediting of individuals due to a specific attribute or characteristic, represents a significant public health concern (21; 33; 73; 87). Stigmatization can occur on the basis of a number of different identities, including ethnicity, race, gender identity, sexual orientation, and weight, for example (87; 117). Stigma can also be intersectional, which is when a person or group is devalued due to multiple attributes or characteristics (88). Minoritized and marginalized groups are often affected by stigmatization in society. A minoritized group is defined as “a part of a population differing from others in some characteristics and often subjected to differential treatment” (74), whereas marginalization is “the process of making a group or class of people feel less important or of a secondary position” (7).

Stigma can exist at structural, interpersonal, and individual levels in society (59; 95). Structural stigma refers to stigmatizing policies and norms, such as the lack of comprehensive training for medical providers regarding how to best treat individuals identifying as transgender (59). Interpersonal stigma includes direct experiences such as harassment or rejection; for example, being rejected by one’s family for identifying as a member of the LGBTQIA+ community is interpersonal stigma (59). Lastly, individual stigma, sometimes referred to as ‘self-stigma,’ includes beliefs about oneself or perceptions of beliefs others hold about them, often leading individuals to internalize this stigma or to alter their behavior to avoid being stigmatized (59). For example, some individuals identifying as women may experience internalized sexism, which is a type of self-stigma (59).

CORRELATES AND EFFECTS OF STIGMA

The Health Stigma and Discrimination Framework posits that the effects of stigma can be seen at a variety of levels in society, with clear “social, cultural, political and economic forces” that promote inequities among stigmatized groups (109).

Stigmatization inhibits social acceptance and access to opportunities (109). It can also lead to stereotyping, prejudice, discrimination, and marginalization (17; 87), which in turn have their own severe consequences. Discrimination occurs when individuals are treated differently due to a group they belong to or an identity they hold (64). It is “a socially structured and sanctioned phenomenon...expressed in interactions among and between individuals and institutions, that maintains privileges for members of dominant groups at the cost of deprivation for others” (64). Discrimination can impede the role of individuals in society and negatively impact society’s overall economic progress (60).

STIGMA AND STRESS

The experience of stigma is associated with a number of adverse correlates and outcomes among those affected. For instance, the relationship between stigmatization and stress has been well-documented. According to Minority Stress Theory (MST), stigmatized individuals who are part of a minority population tend to experience excess stress during their lifetime (76). MST was originally developed to explain the experiences of lesbian, gay, and bisexual (LGB) populations but undoubtedly is relevant for a host of stigmatized identities (76). Stigmatized individuals do not experience excess stress due to their stigmatized identity itself, but rather as a result of instances and expectations of social rejection (3; 50). Experiences of stigma and stigma-related stress may also vary based on whether a stigmatized identity is concealable or visible (93). Those with

concealable identities often have the experience of not knowing how others might respond if their identity is revealed, which may be an additional contributor to stress (93). On the other hand, those with a visible stigmatized identity (e.g. race, gender) have been more heavily researched than those with concealable identities, as they have frequent social experiences with others who are aware of the stigmatized identity (93).

The stress experienced by stigmatized individuals can be especially detrimental due to its duration. Meyer (2003) maintains that according to MST, stress experienced by stigmatized individuals is often chronic and occurs repeatedly over long periods of time, contrasting acute short-term stressors (76). This excess, chronic stress and fear experienced by stigmatized individuals is often associated with poorer physical health (87), a matter of grave concern because chronic stress is associated with morbidity and mortality as well as physical health concerns, which will be discussed in the following section of this paper (59). Physiologically, stress associated with stigma elicits the ‘fight or flight’ response, leading to the activation of the hypothalamic–pituitary–adrenal (HPA) axis and the secretion of stress hormones such as cortisol (50; 87). This response has been documented in stigmatized individuals, for example including sexual minority (e.g. Lesbian, Gay, or Bisexual identifying individuals) populations (50; 77; 88) and individuals who have experienced weight stigma (55; 104).

Stigmatized individuals may also experience excess stress due to anticipated reactions from others (18; 110; 113; 114). Individuals often seek out group membership with others in order to develop a positive social identity; however, this can be threatened if individuals are not able to find this group membership (98). Research suggests this is most likely to occur for individuals and groups with disadvantaged or devalued identities,

such as those with stigmatized identities (98). The social identity threat (SIT) model maintains that stigmatized individuals may anticipate being devalued or stereotyped by others due to their stigmatized identity (18; 110; 113; 114), which has been associated with greater stress levels (67). One group impacted by SIT may be women working in male-dominated fields (106) such as science, technology, engineering, and mathematics (STEM) fields, which can decrease the likelihood that they persist in jobs within these fields (114).

STIGMA AND PHYSICAL HEALTH

The chronicity of stress experienced by stigmatized groups leads to the activation of the sympathetic nervous system and HPA axis for longer periods of time consistent with the chronicity of the stressor (87). This can elevate blood pressure and heart rate while maintaining secretion of stress hormones long-term such as cortisol (87). This constitutes one mechanism that may put stigmatized individuals at a greater risk for illness (50; 87). Stress can contribute to the development and maintenance of many diseases. For instance, individuals who have a minoritized sexual identity (e.g. Lesbian, Gay, or Bisexual populations) have been shown to have higher rates of potentially life-threatening illnesses, such as cardiovascular disease, human immunodeficiency virus (HIV), and certain cancers in contrast to their heterosexual counterparts (42; 87). In addition, women who hold a minoritized sexual identity have over twice the odds of developing overweight or obesity than heterosexual women (42). According to MST, these individuals are at greater risk for these health conditions due to the excess stress they often experience due to instances of social rejection (3; 49; 87).

The National Health and Nutrition Examination Survey (2001-2010), which

sampled over 11,000 U.S. adults documented a similar trend, finding that participants who identified as a sexual minority had more health problems than heterosexual participants on average (83). Research also suggests that cortisol responses can become blunted over time due to HPA axis dysfunction in populations experiencing high levels of structural stigma (49). One study of young adults identifying as lesbian, gay, or bisexual (LGB) found that participants who had a history of exposure to “highly stigmatizing environments” demonstrated this response (49).

The association between holding a stigmatized identity and health problems may also be caused, in part, by reduced help-seeking behaviors (17) and increased barriers to healthcare (59) documented among stigmatized groups. For example, in the transgender community, barriers to gender-affirming and culturally responsive healthcare may contribute to poorer health outcomes (59). Relatedly, the attitudes of healthcare providers may also impact the physical health of stigmatized individuals. Specifically, medical providers may hold negative attitudes toward stigmatized groups (8). One study surveyed Australian women during pregnancy and after giving birth as well as medical and maternity healthcare providers (78). Women with a higher BMI reported more negative care experiences than those with a lower BMI, and providers caring for women prior to giving birth had less positive attitudes about women with overweight or obesity compared to those without overweight or obesity (78). Some stigmatized groups also report a general mistrust of the healthcare system. This trend is well-documented in the literature, such as in African-American men (89) and in Black men identifying as gay/ bisexual/ or men who have sex with men (GBM) (94).

STIGMA AND MENTAL HEALTH

Stigmatized groups are at greater risk for the development of psychiatric concerns due to experiences of stigmatization and discrimination (14). Notable disparities in mental health outcomes have been linked to “disproportionate exposure to stigma-related stress” (85), which may lead to clinically significant distress in stigmatized groups (82). One study of individuals experiencing homelessness found that those who had higher levels of experienced and or anticipated stigma due to homelessness self-reported more psychological distress than those who experienced lower levels of stigma (120). Another study with participants identifying as bisexual found that experiences of stigma related to their sexual orientation were correlated with worse mental health outcomes (41). Results of a meta-analysis of 49 studies indicated that experiences of both stigma and discrimination are associated with higher rates of specific mental illnesses, such as anxiety (68).

Anxiety

One of the most robust relationships between stigma and mental health is that between stigma and anxiety. Links between experienced stigma and anxiety symptoms have been observed cross-sectionally among Black and Latinx adults (4), African American and Afro-Caribbean youth (86), bicultural East Asian adults (58), transgender and gender diverse (TGD) adults (90), and sexual and gender minority (SGM) adults and youth (15; 16; 23; 47; 69; 70; 72). One national study found lifetime prevalence rates of developing an anxiety disorder in bisexual and lesbian women were nearly 27% and 10% higher than heterosexual women, respectively (16). The same study found lifetime prevalence rates of developing an anxiety disorder in gay and bisexual men were nearly 23% and 20% higher than heterosexual men, respectively (16).

POTENTIAL PROTECTIVE FACTORS

Resilience and coping styles may impact the relationship between stigmatizing experiences and adverse stress reactions and health outcomes, such that the impact of stigmatization may be influenced by how individuals respond to and process it (117). Bockting and colleagues (2013) explain that resilience involves challenging the negative self-evaluations that often occur due to stigmatization (14). Resilience in this context tends to involve seeking out social support from peers and family and developing pride in one's stigmatized identity (14). However, recurrent experienced and anticipated stigma may represent additional barriers to developing self-efficacy, a sense of pride in one's identity, and as a result, resilience (14). Ultimately, the threat of stigma may be lower in individuals with stronger resilience (17), whereas being stigmatized, discriminated against, or marginalized may be more harmful to the well-being of individuals with lower resilience (117). Alternatively, this relationship may also have a bidirectional effect in that a greater frequency of stigmatizing experiences might also reduce an individual's resilience (25).

In addition to resilience, the ways in which one copes with stigma may protect against the impact of stigma. Some studies have distinguished between three coping styles: problem-focused coping, emotion-focused coping, and dysfunctional coping (31). Emotion-focused coping may involve processes such as using cognitive reframing techniques or using religion or humor to cope with a stressor (31). Problem-focused coping might involve planning a response to the stressor or receiving support from others (31). Lastly, dysfunctional coping may involve substance use, denying that the stressor occurred, or venting to others about the stressor (31). In the context of stigmatized

identities, dysfunctional coping may include avoiding stigmatization or discrimination via withdrawing socially (14; 100). In the long term, dysfunctional coping styles such as avoidance can contribute to demoralization of the stigmatized individual, reduced self-esteem, social isolation, and distress (1; 100).

GENDER-BASED STIGMA

In addition to those holding minoritized identities, those identifying as female also face pervasive societal stigma and devaluation. Gender-based stigma involves the devaluation of women due to their gender and is distinct from similar constructs such as sexism, which includes hostile and patronizing attitudes toward women to promote their subjugation (33; 45; 73). Women have been stigmatized in society due to traditional roles and expectations society has set for them (12). These gender roles historically encouraged women to be homemakers who care for their family and discouraged women from being a part of the workforce while promoting the idea that men should be leaders and wage-earners (12; 92). These roles have a direct relationship with the power differential that exists between men and women in society today, according to feminist theory, a differential that is arguably the backbone of patriarchal modern society (12; 79). Males have historically had more power in society than females because they have traditionally been the primary wage-earner for families, giving them financial power over women (12).

The workplace is one context in which gender-based stigma toward women can be rampant. For example, women in historically male-dominated fields (i.e. construction, engineering, law, and medicine) have been stigmatized (116; 119; 122). Relatedly, women are still underrepresented in historically male occupations as well as in high-

ranking positions across the workforce (5; 54). In fact, despite women composing 47% of the U.S. workforce, only 14% of top management positions are held by women (51). In the medical field, women have historically held fewer leadership roles than men, and trends reveal extremely slow progress. Specifically, over the ten-year span between 2004 and 2014, the proportion of female medical school deans rose a meager 6%, with women accounting for only 16% of deans in 2014 (111).

Women are also underrepresented in leadership positions in fields where they hold the vast majority of jobs. In public relations (PR), women account for 75% of the workforce but only 20% of top positions in this field (40). Schuh and colleagues (2014) argue that “women, despite some progress over the past decades, are still disadvantaged in the largely male-defined domain of leadership” (101). The inequity that exists between men and women in the workforce extends beyond hiring women to leadership roles; it also impacts how women are paid. Men earn more money than women around the world (5). In 2017, women in the U.S. had a median annual income over \$10,000 less than their male counterparts (43). In 2021, experts estimate women will make \$0.82 for every \$1 men make, only 5¢ more than women made ten years ago (37). This gender ‘wage gap’ is even more disparate for women of color. Black women earn \$0.63, Native American women earn \$0.60, and Latinas earn \$0.50 for every dollar that White men make (80). The gender wage gap is not expected to completely close until 2059, and these estimates likely only account for the gap between White men and White women (37).

Gender stereotypes, bias, and intersectional stigma are known to be significant contributors to these trends in the workforce as well as the idea that women do not possess skills to succeed in ‘gender-typed’ jobs originally developed for males and

leadership positions (54). Donner and Goldberg argue (2021) “[t]here’s also good old-fashioned sexism at play: Even when men and women are performing the exact same jobs, women tend to receive less compensation thanks to overt or unconscious biases” (37). Heilman (2012) contends that stereotypes, stigma, and bias are ultimately harmful to workplaces and fail to capitalize on the talents of female employees (54). Ultimately, “[a]lthough women have made important strides in catching up with men in the workplace, a gender gap persists both in wages and in prospects for advancement” (46).

Benevolent sexism, defined as the idea that women need to be protected by men because they cannot protect themselves (34), also contributes to these trends. Patronizing behavior similarly serves to support benevolent sexism by promoting the idea that women are inferior to men (34). This hierarchy perpetuates the belief that female employees are sub-par workers compared to their male-identifying counterparts, maintaining inequities in achievement and wages in the workplace. On an interpersonal level, stigma in the workplace for women may take the form of blatant sexism, sexual harassment, sexual advances, and sexual assault (96), all of which may contribute to perpetuating a hostile work environment and harming female employees’ safety and well-being (62).

One occupational field in which women have been historically underrepresented and stigmatized is the United States (U.S.) military. The following section of this paper will describe the importance of evaluating gender-based stigma in the U.S. military and its associations with mental health.

GENDER-BASED STIGMA: WOMEN IN THE MILITARY

The military environment may be a setting in which women are particularly vulnerable to gender-based stigma due to their minority group membership. Nearly

230,000 women were serving as active-duty service members in 2021 (35). In 2018, women represented less than a quarter of the population of service members in each U.S. military branch, and in some branches such as the Marines, they represented under 10% of the service (22). Women are underrepresented in the military as a whole, including high-ranking positions of officers (54). In the Coast Guard, 23% of officers in 2018 were female, and in the Air Force, 21% of officers were female (22). Nineteen percent of Army and Navy officers were female in 2018, while the Marines had the lowest proportion of female officers, at only 8% (22). Racial composition in 2019 for active duty women officers were: ~68% White, ~12% Black, ~9% Asian, ~4% Multiracial, ~6% unknown race, ~1 Native Hawaiian/Pacific Islander, and ~1% American Indian/Native Alaskan (32).

In addition to being represented in lower numbers than males, female Marines, including officers, also are retained at lower rates than male Marine officers. For example, a 2016 report found that female Marine logistics and aviation officers were retained to 10 years in service at a rate of 15% lower than male Marine logistics and aviation officers (102). In addition, several military specialties have historically been restricted to males only, such as ground combat (opened to women in 2013) and Navy submarines (opened to women in 2011) (71). The ban on women serving in ground combat was lifted by Secretary of Defense Leon Panetta, which was a change from the standing policy, the 1994 Direct Ground Combat Definition and Assignment Rule (81).

Some researchers have examined sexist attitudes in relation to the military. One study sampled a population of military-affiliated (current or former service member or current Reserve Officers' Training Corps member) and civilian non-military affiliated

undergraduate university students on attitudes about women in combat (124). Results indicated military-affiliated students (both male and female) had less approving attitudes about women in combat than civilians (both male and female), and this relationship was mediated by sexist beliefs (124). Another study of the U.S. Military Academy (USMA) students found that male cadets with more hostile sexist beliefs rated female peers lower on their military demeanor (defined as ‘projecting a commanding presence of authority’) (97). In addition to sexism, examining gender-based stigma in the military is critical because evidence from civilian populations suggests that gender-based stigma can be harmful (99). However, research on gender-based stigma in this population is lacking.

As a presently male-dominated occupation working to train individuals for peak performance, an investigation into gender-based stigma in the U.S. military is warranted. Examining experiences of stigma in U.S. military officers is necessary because stigma has the potential to adversely increase stress (76) and anxiety (16), which in turn could impact the health and well-being of service members, harming performance and military readiness.

Gender-based stigma in the U.S. military is of critical concern because the military is known as “one of the most masculinist institutions in American society” (121). Historically, military culture has been driven by males and has been hyper-masculine in its emphasis on strength and competition (121). Some have argued that this culture is harmful to women and promotes their objectification within the military system (121). Despite all specialties in the military now being open to women, their ability to engage in some roles such as ground combat continues to be questioned (121). This is despite the fact that the ban on women serving in ground combat was lifted in 2013 (10). For

example, some vocal critics have also stated women service members (SMs) constitute a sexual temptation for male counterparts (57). The resulting message of this hyper-masculine military culture is clear: women are vulnerable and inferior when compared to men (121) and represent a distraction to the mission (57). Women in the military have also been stereotyped as ‘weak’ or ‘girly’ especially if their military work performances might have room for improvement, a mindset also contributing to the harassment of women in the military by men (10). The potential effects of gender-based stigma on women in the military, however, may extend beyond perpetuating concerns about women’s abilities to perform duties, such as engaging in combat. Rates of sexual assault and sexual harassment of women in the military may be perpetuated by hyper-masculine culture and gender-based stigma (121); a civilian study of men enrolled in college found that fraternity membership was associated with accepting attitudes about sexual violence, and conformity as well as felt pressure to adhere to masculine norms mediated this relationship (105). In the 2018 fiscal year, 6.2% of active duty female SMs reported a sexual assault, compared to 0.7% of active duty male SMs (36). These acts serve to promote the “othering” of women in the male-dominated environment (121).

Some researchers (121) have called for policy and organizational changes to make the military environment more conducive to the success of female-identifying service members. Weitz (2015) calls for efforts to increase the number of women in the military broadly as well as the number of women in combat roles to reduce perceptions of female vulnerability in the military (121). Further study is needed to discern what specific changes should be made in attempts to accomplish this goal. In order to make informed organizational changes effectively, it is first necessary to better understand gender-based

stigma in the military.

Assessing gender-based stigma in the military may help provide support for Weitz's (2015) goal of integrating more women into combat roles for the military and could similarly reveal ways the military can work to reduce this stigma (121). Specific experiences of gender-based stigma and the correlates of gender-based stigma need to be identified. Ultimately, gender-based stigma may serve as a significant threat to military readiness of the modern warfighter, given the harmful correlates of stigma already documented in civilian populations, likely necessitating it be efficiently and effectively addressed to improve the strength of our nation's military.

THE PRESENT STUDY

Stigma can have detrimental effects on one's health and well-being. Individuals targeted by stigma have been found to experience increased stress levels, constituting one mechanism linked to poorer health outcomes in these populations. Women are underrepresented in the U.S military and are immersed in a hyper-masculine culture, making gender-based stigma increasingly likely. With all military occupational specialties now open to women, gender-based stigma and associations with stress and anxiety requires evaluation. Although similar constructs to gender-based stigma have been examined in military populations, such as sexism (48; 97; 124), experiences of gender-based stigma that women in the military encounter remain to be identified and understood. The present study aims to categorize these experiences and their associations with stress and anxiety (Figure 1) in female military officers completing the U.S. Marine Corps Basic Officer Course (BOC) at the Basic School (TBS) using data collected as part of a larger study. The original study investigators chose to study this population because

the U.S. Marine Corps has the lowest percentage of women officers (8%) compared to all other military branches (22). In addition, this population was chosen because women in the Marine Corps have been found to have lower retention rates than men in the Marine Corps (102).

AIMS AND HYPOTHESES

Aim 1: Determine the prevalence of gender-based stigma reported by females at the conclusion of BOC training.

Hypothesis 1: The majority of participants will report at least one experience of gender-based stigma in the military.

Aim 2: Assess the associations between gender-based stigma and indices of mental health reported by females at the conclusion of BOC training.

Hypothesis 2a: Gender-based stigma will be associated with perceived stress.

Hypothesis 2b: Gender-based stigma will be associated with symptoms of anxiety.

Aim 3: Determine whether coping style partially mediates the associations between gender-based stigma and mental health at the conclusion of BOC training.

Hypothesis 3: Coping style will partially mediate the association between gender-based stigma and mental health at the conclusion of BOC training, such that the indirect effect of stigma on stress and anxiety through coping style will be significant.

Aim 4: Determine whether resilience moderates the association between gender-based stigma and mental health at the conclusion of BOC training.

Hypothesis 4: Resilience will moderate the association between gender stigma and mental health at the conclusion of BOC training, such that the associations between stigma, stress, and anxiety will be attenuated among individuals reporting greater resilience.

CHAPTER 2: Methods

DESIGN AND PROCEDURES

This study was a secondary data analysis conducted from a larger omnibus study, which used an observational, longitudinal design. TBS leadership approved access to this population for the purposes of the larger study, and the study was approved by the university's Institutional Review Board. The larger omnibus study included both male and female officers entering TBS BOC, and officers were asked to participate in the informed consent process upon their initial arrival at TBS when undergoing in-processing. For the current study, only female participants who completed post-BOC assessments were included.

Participants were administered self-report questionnaires; this secondary data analysis relied on self-reported demographic characteristics, gender-based stigma, perceived stress, anxiety, coping style, and resilience assessed at the completion of BOC training, given that we wanted to assess experiences of stigma in the military and some participants would have no prior military experience before TBS. Surveys included in the secondary data analysis took no longer than 45 minutes to complete.

To prevent coercion, all study personnel wore civilian clothing during informed consent for the larger study. Participants were informed that the larger study was voluntary and that they could withdraw at any time. They were also informed they were

“free to skip any questions [they did not] feel comfortable answering.” They were also assured that their responses would be de-identified and that command would only be notified about aggregate results of the study. All electronic data was protected with encryption.

PARTICIPANTS AND RECRUITMENT

Participants for the current study were female commissioned U.S. Marine Corps officers who were completing BOC at TBS. Individuals were excluded from this secondary data analysis if they were not female and/or were not currently completing TBS BOC.

MEASURES

Demographics

Self-report questionnaires assessed participants’ age, racial identity, sex, and commissioning source. For commissioning source, participants selected from six response options: the U.S. Naval Academy, Enlisted Commission, Leadership Course, Officer Training, ROTC, or Other.

Gender-Based Stigma

An adaptation of the Stigmatizing Situations Inventory (SSI) (118) was used to assess gender-based stigma. The SSI, an assessment of weight stigma, was adapted to assess gender-based stigma in the military because there are presently no existing assessments of gender-based stigma. Past research has focused on assessments of sexism, for example, drawing on measures such as the Experiences with Benevolent Sexism Scale (84) and the Schedule of Sexist Events (63). Despite these established measures being used to assess sexism, a similar construct to gender-based stigma, these measures

were not appropriate for the present study. Thus, an established stigma measure was adapted to assess gender-based stigma specifically in service members for this study.

The SSI asked participants to self-report experiences of gender-based stigma during their total time in the military. The SSI presents 13 situations participants may have encountered during their time in the military due to their gender (i.e. *“Being called names or given a nickname that refers to your gender”* and *“Being teased or harassed by co-workers or peers because of your gender”*). Participants select from four Likert-type scale response options (never (0), once (1), more than once (2), several times/often (3)) indicating the frequency at which they have had these experiences. Scores on each item are summed to produce a total score of stigmatizing experiences, with a higher score indicating more stigmatizing experiences. Cronbach’s α for the adapted SSI in this sample was .92.

Perceived Stress

The 10-item Perceived Stress Scale (PSS-10) (26) was used to assess participant perceived stress level at the conclusion of BOC. Perceived stress is defined as “the degree to which situations in one’s life are appraised as stressful” (26). This self-report questionnaire asks participants to report on their feelings and thoughts during the last month (i.e. *“In the last month, how often have you felt that things were going your way?”* and *“In the last month, how often have you been upset because of something that happened unexpectedly?”*) and to indicate the frequency of these thoughts and feelings using Likert-type scale options (never (0), almost never (1), sometimes (2), fairly often (3), very often (4) (26). Responses are coded as 0-4 to obtain a total sum level of stress, with a high score indicating higher stress (maximum score of 40) (6). The PSS-10 has

acceptable psychometric properties including internal consistency reliability ($>.70$) and Cronbach's α ($>.70$) (65). For the current sample, Cronbach's α was .75.

Anxiety

The Generalized Anxiety Disorder 7-item (GAD-7) assessment (108) was used to assess for probable generalized anxiety disorder (GAD) in participants at the conclusion of BOC, given that anxiety disorders have been documented in populations who have reported stigmatizing experiences. The GAD-7 also is a short instrument and has score cutoffs for symptom severity (11). Each item asks participants to respond to questions about how bothered they have been by symptoms over the past two weeks (i.e. "*Feeling nervous, anxious or on edge*" and "*worrying too much about different things*") using Likert-style response options (not at all (0), several days (1), more than half the days (2), nearly every day (3)) (108). Scores on each item are summed for a total anxiety score, with the total score denoting a participant's current anxiety level: minimal anxiety (0-4), mild anxiety (5-9), moderate anxiety (10-14), or severe anxiety (15-21) (108). The GAD-7 has been shown to have both a strong internal consistency (Cronbach's $\alpha = 0.92$) and intraclass correlation coefficient (0.83) (108). Similarly, the GAD-7 has had good convergent validity with other assessments of anxiety such as the Beck Anxiety Inventory ($r = 0.72$) (9; 108). For the current study, Cronbach's α was .92.

Resilience

The 10-item Connor-Davidson Resilience Scale (CD-RISC 10) was used to assess resilience over the past month (28). Items asked participants to rate the extent to which they agree with ten statements (i.e. "*I can deal with whatever comes my way*" and "*I am able to adapt when changes occur*") using Likert-style response options: (0) not true at

all, (1) rarely true, (2) sometimes true, (3) often true, and (4) true nearly all the time. Scores on individual items are summed for a total score, ranging from 0-40, with higher scores indicating greater resilience (28). Consistent with previous literature (123) and to aid in model interpretation, resilience was dichotomized into two categories: high resilience and low resilience. These categories were based on the national average score of 32 on the CD-RISC 10, such that low resilience is defined as any score ≤ 32 , and high resilience is defined as any score > 32 (29). The CD-RISC 10 has been shown to have good reliability (Cronbach's $\alpha = .85$) and construct validity (19). Cronbach's α in the current sample was .97.

Coping Style

Coping style was assessed via the 28-item Brief-COPE (Coping Orientation to Problems Experienced) inventory (20). This inventory asks participants to what extent they have been performing 28 strategies to cope with stress during their time at TBS BOC (i.e. *"I've been getting help and advice from other people"* and *"I've been expressing my negative feelings"*) using Likert-style responses ranging to include (0) I haven't been doing this at all, (1) I've been doing this a little bit, (2) I've been doing this a medium amount, and (3) I've been doing this a lot (20). Scores on this inventory are computed for fourteen facets, which are used to compute three subscales via the methodology employed by Cooper, Katona, Orrell, and Livingston (2006), labeled: emotion-focused coping (5 facets; i.e. acceptance, emotional support), problem-focused coping (3 facets; i.e. instrumental support, planning), and dysfunctional coping (6 facets; i.e. denial, self-blame) (31). Higher scores on emotion-focused coping and problem-focused coping indicate more adaptive coping styles, whereas higher scores on the

dysfunctional coping subscale indicate more dysfunctional coping strategies (31). Historically, the Brief-COPE has demonstrated variability in psychometric properties based on the population of study (20). The initial validation study indicated acceptable reliability (all Cronbach's α values $>.50$) for the fourteen facets (20). In the present sample, Cronbach's α for the full measure was .94.

DATA ANALYTIC APPROACH

All analyses were conducted using IBM SPSS Version 25 (Chicago, IL). Data were checked for normality, and GAD-7 scores were not normally distributed. Log-10 and Natural Log transformations were used, but data remained skewed. Based on visual boxplot analyses for anxiety and perceived stress, all potential outliers detected were plausible values, and no outliers were recoded nor removed (2). Many participants were missing data for self-report surveys. Survey response rates were computed, and the total sample sizes (n) for each survey are listed in Table 3.

Aim 1: Gender-Based Stigma

Consistent with previous literature (91), scores on the SSI were dichotomized as: those who reported the experience of gender-based stigma (1=at least one stigmatizing experience reported) and those who did not report any experiences of gender-based stigma (0=no stigmatizing experiences reported). The frequencies of participants with and without reported stigma were determined.

Aim 2: Gender-Based Stigma and Mental Health

Two linear regressions were conducted. The first examined the relationship between the presence of gender-based stigma (IV) and perceived stress, measured as a continuous variable (DV). The second examined the relationship between the presence of

gender-based stigma (IV) and anxiety (GAD-7), measured as a continuous variable (DV). All models were adjusted for age, racial identity (0=white, 1=nonwhite), and commissioning source (1=High military experience, 2=Low military experience). Commissioning source was dichotomized as High military experience (commissioned from U.S. Naval Academy or an Enlisted Commission) versus Low military experience (commissioned from Officer Training Reserve Officers' Training Corps, a Leadership Course, or some other commissioning source) and included as a covariate because those with more time in the military might be more likely to report more experiences of stigma during their time in the military. In addition, analyses were repeated with gender-based stigma total scores as the continuous IV to determine whether there may be a dose-response effect. Continuous gender-based stigma was defined as the total SSI score for participants based on responses to each item (never=0, once=1, more than once=2, several times/often=3). These supplemental analyses included two linear regressions examining the relationships between continuous gender-based stigma (IV) and continuous perceived stress (DV) as well as continuous gender-based stigma (IV) and continuous anxiety (DV). Because anxiety was not normally distributed, supplemental analyses were conducted utilizing a dichotomized measure of anxiety such that a total score of 0 on the GAD-7 was considered the absence of anxiety symptoms and a total score of ≥ 1 on the GAD-7 indicated the presence of anxiety symptoms. Logistic regressions examined the relationship between the presence of gender-based stigma (IV) and the odds of reporting anxiety symptoms (DV) and that between continuous gender-based stigma (IV) and the odds of having anxiety symptoms (DV).

Aim 3: Mediation Model

Six mediation models (Figure 2) were run with the regression model via SPSS PROCESS macro (52). These models examined whether the various coping styles (emotion-focused; problem-focused; dysfunctional) mediated the relationships between dichotomous gender-based stigma (IV) and perceived stress or anxiety (DV). Race, age, and commissioning source were included as covariates. The models estimated the relationship between gender-based stigma and either perceived stress or anxiety (total effect; c path), the relationship between stigma and coping style (a path), the relationship between coping style and either perceived stress or anxiety (b path), the relationship between stigma and perceived stress or anxiety after adjusting for coping style (direct effect; c' path), and the indirect effect of gender-based stigma on perceived stress or anxiety through coping style (ab path). The indirect path was considered significant if the associated 95% confidence interval did not contain zero.

Aim 4: Moderation Analysis

Moderation analyses were also conducted using SPSS PROCESS macro (52) with dichotomous gender-based stigma as the IV and either perceived stress or anxiety as the DV. We tested an interaction term of gender-based stigma with resilience (high resilience is >32 and low resilience is ≤ 32). Main effects and interaction effects were calculated, and race, age, and commissioning source were again included as covariates.

CHAPTER 3: Results

One hundred and thirty-eight female officers participated in the larger omnibus study, but only eighty-two female officers completed the self-report measure of gender-based stigma at BOC completion and were included in the present study (56 participants did not complete the measure of gender-based stigma and were thus excluded from

analyses). The final sample of 82 participants who completed the measure of gender-based stigma did not significantly differ in age or race from participants who did not complete it. Because participants could also skip any item in the additional surveys, specific sample sizes for each survey are noted in Table 3. Survey completion rates for study measures ranged from 59.42%-84.06%, with gender-based stigma being the measure with the lowest completion rate for the current study. Completion rates for each item of the gender-based stigma measure are noted in Table 2.

SAMPLE CHARACTERISTICS

Participants ranged in age from 21 to 35 years of age with a mean of 25.24 years ($SD=3.18$; Table 3). Almost three quarters of the sample was White (70.7%); other racial and ethnic groups included Black/African American (1.2%), Hispanic/Latina (14.6%), Multiracial (9.8%), and other race (3.7%). Twenty-two percent of the sample were classified as “High Military Experience” (commissioned from U.S. Naval Academy [9.8%] or an Enlisted Commission [12.2%]), and 78% were classified as “Low Military Experience” (commissioned from Officer Training [45.1%], Reserve Officers’ Training Corps [18.3%], a Leadership Course [13.4%], or some other commissioning source [1.2%]). Mean anxiety was 3.04 ($SD=4.41$; possible score=0-21), perceived stress was 13.39 ($SD=6.63$; possible score=0-40), resilience was 30.42 ($SD=8.47$; possible score=0-40), emotion focused coping was 13.63 ($SD=7.27$; possible score=0-30), problem-focused coping was 8.83 ($SD=5.10$; possible score=0-18), and dysfunctional coping was 8.31 ($SD=6.83$; possible score=0-36). Average gender-based stigma total score was 11.60 ($SD=11.17$; possible score=0-23).

RESULTS FOR AIM 1: PREVALENCE OF STIGMA

Sixty-five participants (79% of participants who completed the measure) endorsed at least one experience of gender-based stigma during their military careers, and 17 participants (21%) reported no experiences of gender-based stigma. The most frequently endorsed experiences of stigma included: “being perceived as weak or unfit because of your gender” (37.7%), “having people assume you have emotional problems because you are a woman” (36.2%), and “being perceived as unstable or ‘emotional’ because of your gender” (30.4%).

RESULTS FOR AIM 2: STIGMA AND MENTAL HEALTH

Adjusting for age, race, and commissioning source, neither perceived stress [$F(1,71) = .08, B = -.56, p = .78, R^2 = .003$] nor continuous anxiety [$F(1,72) = 3.40, B = -2.27, p = .07, R^2 = .07$] were significantly associated with dichotomized gender-based stigma. Supplemental analyses showed perceived stress was also not significantly associated with continuous gender-based stigma [$F(1,71) = 3.18, B = .14, p = .08, R^2 = .05$], but anxiety was [$F(1,72) = 13.91, B = .19, p < .001, R^2 = .19$], when adjusting for age, race, and commissioning source. Also adjusting for age, race, and commissioning source, gender-based stigma, both continuous and dichotomous, was associated with greater odds of reporting a GAD-7 score ≥ 1 . Specifically, those reporting gender-based stigma had four times higher odds of reporting a GAD-7 score of ≥ 1 , [$OR = 4.39, 95\% CI = 1.24, 15.74, p = .02$] compared to those with no gender-based stigma; 60% of the sample both reported stigma and endorsed anxiety symptoms, while 29.4% of the sample both reported no stigma and endorsed anxiety symptoms (Figure 3).

RESULTS FOR AIM 3: MEDIATION MODEL

Adjusting for age, race, and commissioning source, neither of the three coping

styles (emotion-focused; problem-focused; dysfunctional) significantly mediated the relationships between dichotomous gender-based stigma and perceived stress (Table 4) nor anxiety (Table 5).

RESULTS FOR AIM 4: MODERATION ANALYSIS

Adjusting for age, race, and commissioning source, resilience (high versus low) did not moderate the relationships between the presence of gender-based stigma and perceived stress ($F = .67$, $R^2 = .06$, $p = .67$; Table 6), nor anxiety ($F = .85$, $R^2 = .08$, $p = .53$; Table 7).

CHAPTER 4: Discussion

SUMMARY AND INTERPRETATION OF FINDINGS

In a sample of female Marine officers completing BOC at TBS, our hypothesis that a majority of participants who completed the adapted SSI would report at least one experience of gender-based stigma during their time in the military was supported. Our hypothesis that the presence of gender-based stigma would be significantly associated with perceived stress and anxiety was not supported by primary analyses. However, supplemental analyses found significant associations between gender-based stigma, both continuous and dichotomous, and greater odds of reporting anxiety. Our hypothesis that coping style would mediate the relationship between gender-based stigma and anxiety or perceived stress was also not supported. Lastly, findings did not support our hypothesis that resilience would moderate the relationship between gender-based stigma and anxiety.

This sample's scores for anxiety are comparable to additional studies with active duty service member populations and members of the National Guard (13; 56). Perceived stress levels in this sample were also comparable to veterans after recently completing a

stress-reduction course (112), although they were notably lower than National Guard soldiers returning from deployment (27).

Primary hypotheses may not have been supported due to the small sample size resulting in under-powered analyses. In addition, they may not have been supported due to the low anxiety reported by the sample (mean score = 3.04 out of a possible 21). Underreporting may have also impacted the results. Despite the efforts of study staff to ensure participants that command would not be informed about individual responses to surveys, participants may have still been reluctant to report symptoms due to confidentiality concerns. The link between gender-based stigma and dichotomized anxiety but not perceived stress or total anxiety may have also been documented due to the large portion of the sample who denied having any anxiety symptoms; 60% of the sample reported both stigma and endorsed anxiety symptoms, while 29.4% of the sample reported no stigma and endorsed anxiety symptoms. These results did not replicate previous findings that stigmatizing experiences are linked with stress, such as in sexual minority populations (50; 77; 88), and in individuals who have experienced weight stigma (55; 104). Similarly, these results did not replicate research in civilian bisexual and lesbian populations demonstrating that stigmatizing experiences are associated with increased anxiety (16). Resilience may not have acted as a moderator in this study because this study assessed general resilience, rather than resilience in response to experiences of gender-based stigma. Similarly, coping style may not have acted as a mediator because participants reported their coping styles in response to stress, rather than in regard to their experiences of gender-based stigma specifically.

STUDY STRENGTHS

Study strengths include the investigation of gender-based stigma and its association with mental health in a population that has not yet been considered in this line of research: female military officers. This study was also the first to use an adapted measure of the SSI to examine gender-based stigma and well-validated measures of perceived stress and anxiety.

STUDY LIMITATIONS

A limitation of this study is that as a secondary data analysis, all study results should be considered exploratory. This is because this secondary analysis was not part of the primary study aims, so the larger omnibus study was not powered for the current analyses. In addition, limitations of the present study include the cross-sectional design, relying on a secondary data analysis of a single time point, preventing interpretations about causality of study variables. Gathering only information on these constructs at the conclusion of the officer training course may not be a strong indicator of rates of gender-based stigma experienced by service members over the course of their military careers. Additionally, a limitation of this study was that gender identity was not assessed because participants were asked to only self-report their sex as “male” or “female.” Another limitation of this study was its small sample size, which may have resulted in under-powered analyses. Although 138 participants took part in the study, 56 (40.6%) did not complete the primary measure of interest and were thus excluded from current analyses, or they were not able to complete this due to time constraints of training. This study also had a predominantly White sample and had especially low representation of Black/African American participants (<1%), compared to the proportion of Black/African American Marine Officers currently serving (~5%) (38). The low representation of

Black/African American participants in this study may have in part been due to participant concerns that their responses would be identifiable in aggregate data provided to command because of the low representation. Another limitation was that supplemental analyses dichotomized GAD-7 scores as 0 (considered the absence of anxiety symptoms) versus ≥ 1 on the GAD-7 (presence of anxiety symptoms); this dichotomization does not indicate the presence versus absence of clinical anxiety. These analyses were conducted due to the inability to transform GAD-7 scores, which were skewed for the study participants. These analyses should be considered secondary and separate from primary study aims.

In addition, a limitation of this study was the measurement of self-reported perceived stress rather than measuring stress physiologically. This may differ from an objective measure of participant stress, such as cortisol (75), for example. During officer training, a difficult time inevitably for many, the study staff decided that minimizing the burden of participating was a top priority. Despite this, the PSS-10, however is highly correlated with hair cortisol concentration (39). Measuring participants' coping in response to stress as opposed to gender-based stigma was also a limitation of this study and may not reflect participants' coping responses to stigmatizing experiences specifically. Administering surveys at the completion of TBS training may also be a limitation of the present study. Data captured by self-report surveys also may not be entirely accurate because self-report measures generally may not always reflect actual behaviors or experiences being assessed (44). The use of self-report measures as the sole assessments in this study was also a limitation. An additional limitation of the measures used in this study is that the adapted SSI has not yet been validated. Additionally, a

limitation is that one coping style, rumination, was not assessed in the present study. This coping style has been found to be more common in lesbian, gay, and bisexual populations due to frequent stigmatization, in contrast to heterosexual individuals (50). An additional concern regarding study measures is that variables not measured in the study may impact the results and could create a third variable problem.

Results from this study examining a single officer training course may also not generalize to the entire female military population, including women in other branches of the military, women in other officer training courses, and enlisted women. In addition, data regarding gender-based stigma may not generalize to individuals experiencing different types of stigma in the military such as stigmatization due to race, ethnicity, culture, or sexual orientation.

POLICY AND CLINICAL IMPLICATIONS

To our knowledge, as the first study to assess gender-based stigma and its relationship with mental health in a population of female military officers, this study has identified key relationships that may inform clinicians and leadership. Over 79% of participants who completed the self-report survey on gender-based stigma endorsed at least one experience of this stigma during their military career. The current data underscore the need to develop strategies to assess and address gender-based stigma. Officer and enlisted military training courses such as BOC at TBS have the opportunity to set the precedent for mitigating stigmatizing experiences and or treatment. More effective and efficient efforts can be taken to combat stigma in the military to promote a more inclusive and ready force. Military leadership have already begun training to promote mental health among the force, with an emphasis on identifying and preventing

suicide risk, for instance (115). Units with more positive ratings of leadership have also been found to have better mental health (61).

Data provide preliminary support for clinicians to assess stigma in their clients, and women in a predominantly male training environment, such as BOC at TBS, may be particularly vulnerable due to the Marine Corps being the military branch with the lowest representation of women. Clinicians may be able to test existing treatments for individuals experiencing stigma and work to individualize and target treatment plans for service members. Affirmative group therapy and acceptance and compassion-based group therapy, for instance, have been studied as interventions for some stigmatized groups such as transgender and gender-nonconforming individuals (TGNC) and individuals with HIV, respectively (24; 107).

This research should alert the military that gender-based stigma may be common in female Marine officers. This study may also inform future research on different types of stigma that may be negatively impacting military readiness, such as stigma exhibited toward the LGBTQ+ military community (103).

FUTURE DIRECTIONS

Future research should continue to examine gender-based stigma, among other forms of stigma, in the military in a variety of contexts (e.g. training environments, operational environments) and across ranks and grades (e.g. officer and enlisted). Stigmatizing experiences remain under-researched in the military, and their link to health and readiness is yet to be fully understood. Future research should also be expanded to examine the experiences of individuals with multiple marginalized identities rather than those with just one marginalized or stigmatized identity. Intersectional identities often

constitute “interlocking systems of oppression for individuals from multiple marginalized groups” (66). Care should be taken to better understand the stigmatizing experiences of individuals with these identities and their relationship to mental health. Overall, stigmatizing experiences of service members should be tracked and researched regularly in order to gather accurate and longitudinal data on these experiences across different branches and contexts in the military to inform best practices for combating stigma. Future studies should seek to obtain large, representative samples (comprising a broad range of ages, races/ethnicities, sexual orientations, and gender identities) in order to produce potentially more generalizable findings about experiences of gender-based stigma in the military. Future research in other branches may determine differences in branches with larger proportions of women (i.e. Air Force, Navy, Army) than the Marine Corps; stigmatizing experiences based on one’s gender may be hypothesized to be lower due to the greater numbers of women in these branches. Thus, this line of research should compare branches with each other. In addition, temporal links between stigma and potential downstream relationships should be investigated, such as a link with mental health outcomes and military performance. The relationship between promotion rates, retention rates, and stigma should also be examined in order to determine if stigmatizing experiences may contribute to the lower rates of retention of women in the Marine Corps when compared to men (102).

There is also a need to further examine the characteristics of women in the Marine Corps to determine how these may impact stigmatizing experiences and coping/resilience to such experiences. Given that the Marines have the lowest proportion of women out of all military branches, women who join the Marines may report unique factors and or

characteristics (i.e. high resilience, grit) that motivate their desire to serve in this branch. Such factors may lead women in the Marines to be more likely to cope with stigmatizing experiences, for example, or underreport such experiences.

Interventional studies are critically needed to test stigma-reduction strategies. There is still a paucity of research in this area in the military, specifically with regard to multi-level (intrapersonal, community, government) approaches to reducing stigma (53), as studies have identified that this multifaceted approach is likely the most effective in reducing stigma (30). Stigmatization is a dynamic construct that impacts multiple levels of society, and researchers must similarly continue to evaluate dynamic strategies for reducing such stigma (95). Ultimately, strategies should be created and evaluated in an attempt to reduce stigma and its effects.

Further research is also needed to examine the relationship between stigma, mental health, and physical health in female service members. Notable health disparities have been documented in stigmatized groups, and stigma and discrimination are linked to adverse health sequelae (42; 87), yet this research in military populations is lacking. However, these data should be collected given the often strenuous nature of many military jobs and physical fitness requirements for those serving. Longitudinal studies are also needed to measure these constructs over time. In order to fully understand the nature and frequency of gender-based stigma in the military it is necessary to identify patterns and trends in these phenomena. Future research should also consider multi-site studies to gather a larger sample of female service members in order to attain a sample representative of general experiences of both officer and enlisted women in the military.

CONCLUSION

This study aimed to fill a gap in the literature for examining gender-based stigma and its relationship with stress and anxiety in a female military officer population. Findings suggest that experiences of gender-based stigma in this population may be common, and these experiences may be associated with the presence of anxiety. Longitudinal data from a large, representative sample spanning military branches, ranks, and grades are needed to fully discern this relationship.

Table 1: Definitions of Terminology

Term	Definition
Stigma	Devaluing or discrediting of individuals due to a specific attribute or characteristic (21; 33; 73; 87)
Intersectional Stigma	The convergence of multiple stigmatized identities within a person or group (88)
Minoritized Group	“A part of a population differing from others in some characteristics and often subjected to differential treatment” (74)
Marginalization	“The process of making a group or class of people feel less important or of a secondary position” (7)
Discrimination	When individuals are treated differently due to a group they belong to or an identity they hold (64)
Sexism	Hostile and patronizing attitudes toward women to promote their subjugation (33; 45; 73).

Table 2: Adapted Stigmatizing Situations Inventory for Gender-Based Stigma

Item	Reported % (n)	Not Reported % (n)	Missing % (n)
<i>Indicate whether, and how often, each of these situations happens/happened to you during previous military training as the result of your gender.</i>			
Not being hired or selected for a job or position that you were qualified for because of your gender	9.3 (13)	55.8 (77)	34.8 (48)
Being passed up for a promotion or an advancement for which you were qualified because of your gender	4.3 (6)	60.9 (84)	34.8 (48)
Being teased or harassed by co-workers or peers because of your gender	26.8 (37)	38.4 (53)	34.8 (48)
Overhearing peers/colleagues talking behind your back	22.4 (31)	42.8 (59)	34.8 (48)
Being teased or harassed by a person of higher rank in the non-deployed setting	9.4 (13)	55.8 (77)	34.8 (48)
Being teased or harassed by a person of higher rank in the deployed setting (if applicable)	2.9 (4)	60.9 (84)	36.2 (50)
Being called names or given a nickname that refers to your gender	10.9 (15)	55.1 (76)	34.1 (47)
Having people assume you have emotional problems because you are a woman	36.2 (50)	28.3 (39)	35.5 (49)
Being shunned or avoided because of your gender	23.9 (33)	42.0 (58)	34.1 (47)
Being perceived as unstable or "emotional" because of your gender	30.4 (42)	35.5 (49)	34.1 (47)
Being perceived as weak or unfit because of your gender	37.7 (52)	28.3 (39)	34.1 (47)
Being excluded from social activities because of your gender	28.9 (40)	37.0 (51)	34.1 (47)
Having difficulty forming friendships because of your gender	23.8 (33)	41.3 (57)	34.8 (48)

Response options include: Never (0), once (1), more than once (2), several times/often (3) to indicate the frequency at which they have had these experiences. Scores on each item are summed to produce a total score of stigmatizing experiences, with a higher score indicating more stigmatizing experiences.

Table 3: Sample Characteristics

	Presence of Stigma (n=65)	Absence of Stigma (n=17)	Total Sample (n=82)
Age (years)	25.22 ± 3.28	25.35 ± 2.85	25.24 ± 3.18
Racial Identity/ Ethnicity % (n)			
White/Caucasian	73.80 (48)	58.80 (10)	70.70 (58)
Nonwhite	26.20 (17)	41.20 (7)	29.30 (24)
Black/African American	1.50 (1)	0.00 (0)	1.20 (1)
Hispanic/Latina	13.80 (9)	17.60 (3)	14.60 (12)
Multiracial	6.20 (4)	23.50 (4)	9.80 (8)
Other	4.60 (3)	0.00 (0)	3.70 (3)
Commissioning Source % (n)			
High Experience	21.50 (14)	23.50 (4)	22.00 (18)
U.S. Naval Academy	10.80 (7)	5.90 (1)	9.80 (8)
Enlisted Commission	10.80 (7)	17.60 (3)	12.20 (10)
Low Experience	78.50 (51)	76.50 (13)	78.00 (64)
Leadership Course	13.80 (9)	11.80 (2)	13.40 (11)
Officer Training	46.20 (30)	41.20 (7)	45.10 (37)
Reserve Officers' Training Corps (ROTC)	16.90 (11)	23.50 (4)	18.30 (15)
Other Commissioning Source	1.50 (1)	0.00 (0)	1.20 (1)

Anxiety total score (max: 21, <i>n</i> =72)	3.53 ± 4.73	1.47 ± 2.74	3.04 ± 4.41
Presence of Anxiety symptoms % (<i>n</i>)	60.00 (33)	29.40 (5)	52.80 (38)
Perceived Stress (max: 40, <i>n</i> = 71)	13.53 ± 6.86	12.94 ± 5.97	13.39 ± 6.63
High Resilience % (<i>n</i>)	39.10 (25)	43.80 (7)	40.00 (32)
Emotion-Focused Coping (max: 30, <i>n</i> = 78)	14.48 ± 7.24	10.59 ± 6.68	13.63 ± 7.27
Problem-Focused Coping (max: 18, <i>n</i> = 81)	9.19 ± 5.10	7.53 ± 5.03	8.83 ± 5.10
Dysfunctional Coping (max: 36, <i>n</i> = 80)	8.59 ± 6.80	7.29 ± 7.03	8.31 ± 6.83
Total gender-based stigma (<i>n</i> = 82)	14.63 ± 10.62	--	11.60 ± 11.17

Values presented are mean ± standard deviation, unless otherwise noted.

Table 4. Results of Mediation Model for Perceived Stress

Mediator	<i>a</i>	<i>b</i>	<i>ab</i>	LLCI	ULCI
Emotion Focused Coping	4.65	.02	.10	-1.16	1.55
Problem Focused Coping	2.42	.02	.04	-.93	1.39
Dysfunctional Coping	1.18	.59	.69	-1.61	3.64

LLCI and ULCI are 95% CIs for the indirect effect (ab). Models adjusted for age, race, and commissioning source.

Table 5. Results of Mediation Model for Anxiety

Mediator	<i>a</i>	<i>b</i>	<i>ab</i>	LLCI	ULCI
Emotion Focused Coping	3.74	.15	.58	-.05	1.82
Problem Focused Coping	1.84	.15	.28	-.16	1.27
Dysfunctional Coping	1.36	.41	.57	-1.11	2.53

LLCI and ULCI are 95% CIs for the indirect effect (ab). Models adjusted for age, race, and commissioning source.

Table 6. Results of Perceived Stress Moderation Analyses

	Coefficient	SE	t	p	LLCI	ULCI
Gender-based Stigma	.91	2.64	.35	.73	-4.37	6.19
Resilience	-3.21	3.67	-.87	.39	-10.54	4.13
Gender-based Stigma x Resilience	-.02	4.22	.00	1.00	-8.45	8.41

LLCI and ULCI are 95% Cis. Models adjusted for age, race, and commissioning source.

Table 7: Results of Anxiety Moderation Analyses

	Coefficient	SE	t	p	LLCI	ULCI
Gender-based Stigma	1.32	1.74	.76	.45	-2.15	4.79
Resilience	-1.85	2.34	-.79	.43	-6.54	2.83
Gender-based Stigma x Resilience	2.03	2.72	.75	.46	-3.40	7.47

LLCI and ULCI are 95% Cis. Models adjusted for age, race, and commissioning source.

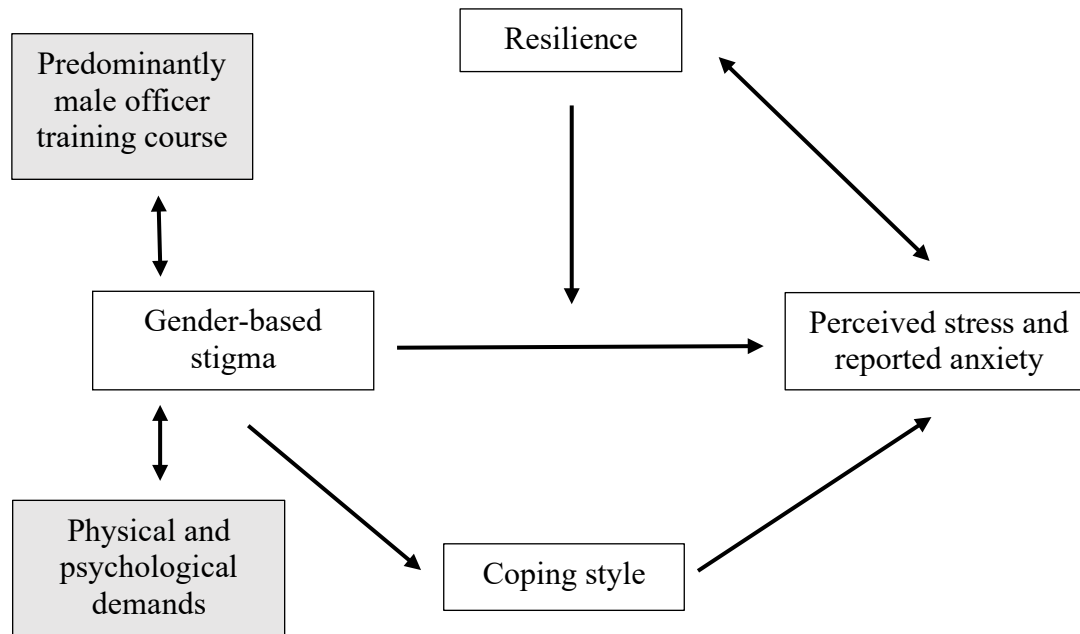


Figure 1. Study Conceptual Model of the Relationship Between Gender-Based Stigma, Perceived Stress, and Anxiety

Shaded boxes are not directly assessed in the present study.

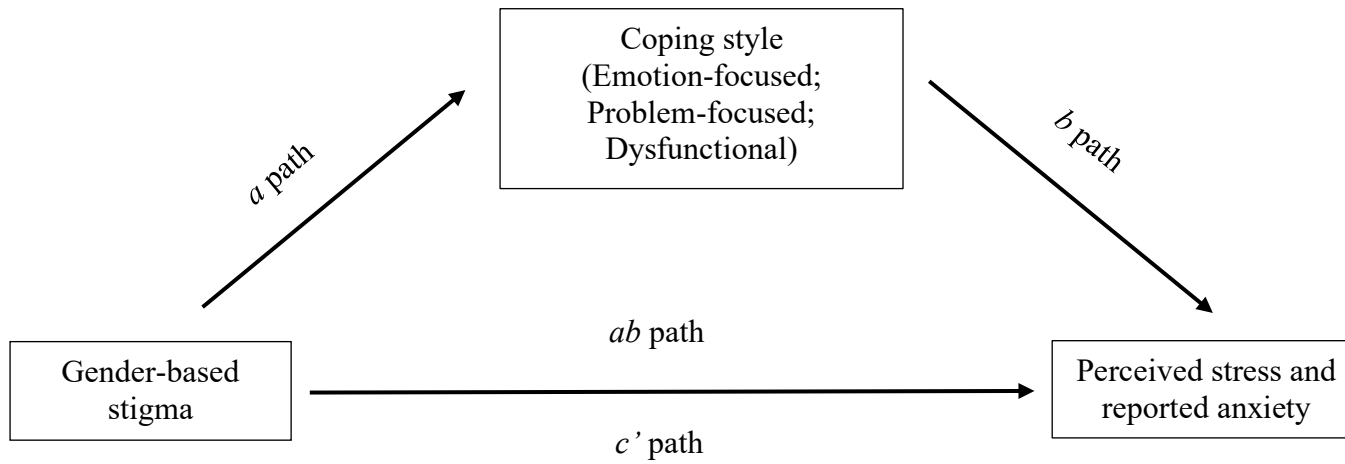
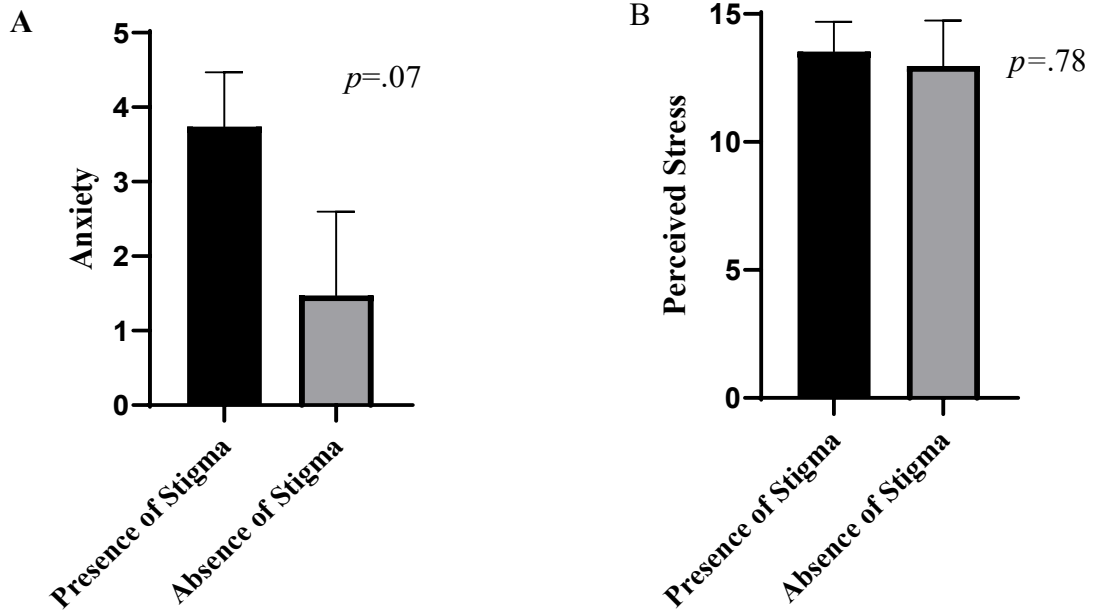


Figure 2. Indirect Mediation Model



Average values adjusted for age, race and commissioning source. Bars represent standard error.

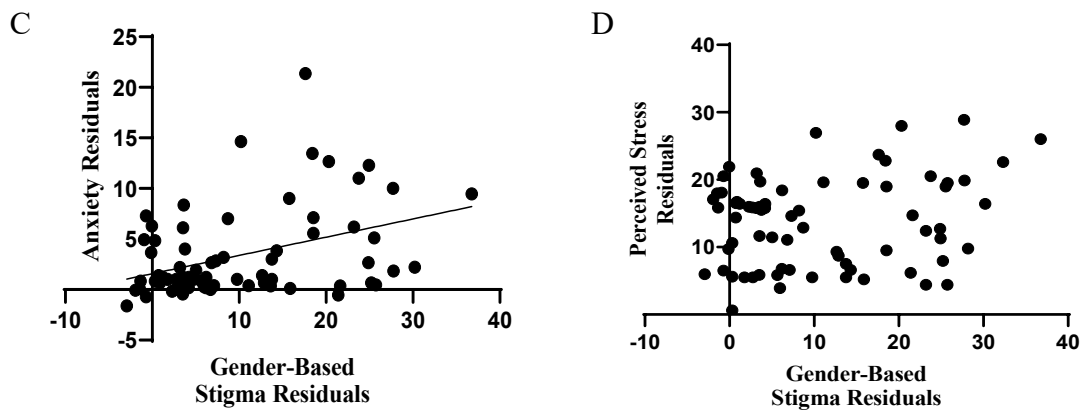


Figure 3. Associations between gender-based stigma and perceived stress and anxiety.

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