EXAMINING THE EFFECTS OF MINORITY STRESS AND RESILIENCE ON SEXUAL MINORITY VETERANS' HEALTHCARE UTILIZATION

by

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Abstract

Prior studies have noted significant health disparities experienced by sexual minority individuals with military histories compared to their heterosexual peers. Often the minority stress model, which posits sexual minority individuals experience unique chronic stressors that affect their well-being and fuel health disparities, is used to conceptualize these differences. Results from several studies have identified that fears or experiences of anticipated stigma and experiences of discrimination related to one's sexual orientation with health care providers are significant barriers to health care utilization for LGB+ people. However, these studies have concentrated on civilian samples, veterans who served primarily before Don't Ask, Don't Tell (DADT) was repealed, or with individuals who primarily use VHA care. Further, most studies have not examined a more comprehensive array of minority stressors as potential predictors of healthcare utilization. Therefore, the current study utilized a cross-sectional online survey of sexual minority individuals who have served in the military since DADT's repeal to examine the direct and indirect impact of minority stress during military service on health care utilization.

To accomplish these goals, cisgender sexual minority adults with military service history after the repeal of DADT were recruited from a Qualtrics panel to participate in an online survey examining the relations between minority stress during time in service and utilization of healthcare services. Data were collected and analyzed regarding LGB+ individuals' demographics, military history, healthcare need, resilience, and minority stress during time in service, including experiences with discrimination, harassment, violent and nonviolent victimization, anticipated stigma, internalized heterosexism, and concealment of one's sexual minority status.

Results showed that distal and proximal stressors did not account for significant variance in healthcare utilization after accounting for demographics and chronic health conditions. Instead, chronic physical and mental health conditions, bisexual/pansexual orientation, and resilience predicted healthcare utilization. Resilience did not moderate the relation between minority stress and healthcare utilization but was an independent predictor of healthcare utilization. Gender moderated the relation between both anticipated stigma and healthcare utilization and internalized heterosexism and healthcare utilization, such that higher levels of these stressors predicted less utilization in men and more utilization in women.

The results illustrate the impact of health need and use of integrated healthcare systems in shaping adherence to recommend preventative screening and vaccinations in sexual minority veterans. The results demonstrate the role of stigma, heterosexism, and gender in determining how sexual minority service members and veterans receive care and suggests the need for different strategies when working with men and women veterans, with a need to encourage men who experienced sexual stigma to receive preventative healthcare as recommended. The results also highlight the need to explore the role of resilience in this population and the subpopulation

of bisexual/pansexual women as they may have experienced protective factors that led them to engage in greater healthcare utilization. Lastly, while minority stress during time in service did not predict healthcare utilization, current minority stress or minority stress in healthcare settings may be a worthwhile area to examine in relation to healthcare utilization. Work in these areas can help to decrease the disparities in healthcare utilization between LGB+ veterans and their heterosexual peers.

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Veterans' Health

An estimated 18.2 million individuals, or 7.6% of Americans, are former service members (National Center for Veterans Analysis and Statistics, 2019). This diverse population has its own culture complete with values, codes of conduct, attitudes, behaviors, and shared language. With this distinct culture, come distinct health risks. These risks tend to be related to the unique experiences these veterans faced when they were service members, including the era in which they served. These service eras are broadly separated by major military conflicts that occurred during each including the Korean War-era, Vietnam-era, Cold War-era, Gulf War-era, and Afghanistan/Iraq Conflicts-era (including Operation Iraqi Freedom [OIF] and Operation New Dawn [OND]), and the current conflict, Operation Enduring Freedom [OEF]).

Across service eras, veterans were exposed to different hazards and toxins with long term health consequences (Department of Veterans Affairs, 2015a). For instance, many Vietnam-era veterans were exposed to a variety of herbicides including Agent Orange as well as the blood-borne viral infection, hepatitis C (Department of Veterans Affairs, 2015c). More recently, veterans who served during OEF have dealt with exposures to toxins including those in burn pits, depleted uranium, and toxic embedded fragments, as well as infectious diseases like malaria and West Nile Virus (Department of Veterans Affairs, 2015b). Some hazards and toxins affected veterans across eras including traumatic brain injury, cold and heat injuries, noise, infectious agents, and exposure from working with chemicals, paint, and machinery (Department of Veterans Affairs, 2015). In addition to exposure to hazards and toxins, there are other conflict specific differences affecting health outcomes. For instance, two of the main differences between post-9/11 veterans and veterans of previous wars are the length of time that combat has persisted

and the improved survival rates from injuries. This means that more veterans will live with long-term conflict-related disabilities, whereas in previous conflicts the same injuries would have likely been fatal (Bollinger et al., 2015).

In addition to these differences within the veteran community, veterans have different health care concerns when compared to their civilian counterparts. When comparing veterans as a population to the non-veteran population, it is important to consider the factors that may contribute to these differences in health. The veteran population as a whole is predominantly male, older, more likely to be married, widowed, or divorced, and more likely to be insured as compared to non-veteran U.S. citizens (National Center for Veterans Analysis and Statistics, 2019). Further, veterans are more likely than non-veteran U.S. citizens to engage in preventative care measures, including physical activity, vaccinations, and cancer screenings (Chi, Reiber, & Neuzil, 2006; Hoerster et al., 2012; Littman, Forsberg, & Koepsell, 2009; Wong & Coups, 2011). However, veterans still experience some poor physical and mental health outcomes compared to non-veteran U.S. citizens, including arthritis and activity limitation (Dominick, Golightly, & Jackson, 2006). They also have elevated physical and mental health risks include posttraumatic stress disorder (PTSD), alcohol use disorder, depression, suicide, traumatic brain injury (TBI), dementia, sleep disturbances, chronic pain, obesity, arthritis, hypertension, and coronary artery disease (Kauth, Meier, & Latini, 2014).

These veterans' documented outcomes and risks of poorer physical health are a shift from the superior health that these individuals often show compared to civilians while serving. Service members are likely to be healthier than the general population which contributes to decreased mortality in active duty populations (McLaughlin, Nielsen, & Waller, 2008). This may be because health is repeatedly assessed through specific requirements that must be met and

maintained to join and to continue serving in the military (Lehavot, Hoerster, Nelson, Jakupcak, & Simpson, 2012). This is often referred to the "healthy soldier effect" or the "healthy warrior effect" and had previously been noted in veteran populations as well as active duty populations (Bollinger et al., 2015; Lehavot et al., 2012). However, this effect has dissipated in veterans of the post-9/11 conflicts: OEF, OIF, and OND. While it is still seen in older veterans and OEF/OIF/OND veterans who are not utilizing VHA healthcare, in OEF/OIF/OND veterans who utilize VHA healthcare, mortality is documented as being greater than or equal to expected mortality in the general population (Bollinger et al., 2015). Younger veterans are known to engage in more risk-taking behaviors and a large proportion of the mortality of OEF/OIF/OND veterans came from accidents that may have been associated with risk-taking behaviors (Bollinger et al., 2015). Additionally, environmental effects of service, among other stressors, can result in higher morbidity and mortality despite veterans overall having higher educational attainment which is typically a buffer against other risk factors. As such, veterans often experience mental and physical health disparities as compared to their civilian peers.

Veterans are a diverse group of individuals that have their own culture, experiences, and health risks. However, since the population of United States veterans is heterogenous, different subgroups of minority veterans may face additional barriers and risks in health care that contribute to their specific health disparities. Three groups of minority veterans (women, racial and ethnic minorities, and sexual minorities) and their health risks and challenges are examined below.

Veterans' Health Among Minority Groups

Women Veterans. According to the National Center for Veterans Analysis and Statistics (2019) approximately 9% of U.S. veterans are women. As women have been allowed to serve in more roles in the military, the number of women veterans has also increased. While women have always been a part of the United States Armed Forces, their job opportunities in the military were limited. They were only allowed to make up 2% of the enlisted service members and 10% of the commissioned service members until 1967 (National Center for Veterans Analysis and Statistics, Department of Veterans Affairs, 2017). In 1973, when the Armed Forces became an all-volunteer force, there was a spike in women in the military (National Center for Veterans Analysis and Statistics, Department of Veterans Affairs, 2017). Today women make up 16.5% of the total military force (National Center for Veterans Analysis and Statistics, Department of Veterans Affairs, 2017).

This, in turn has led to an increase in research to elucidate the specific needs of women veterans. There have been numerous documented differences between men and women veterans. For example, female veterans are younger and more educated than male veterans and are also more likely to have service-connected disability, be uninsured, live in poverty, or use the SNAP (food stamp program) compared to male veterans (Lehavot et al., 2012; National Center for Veterans Analysis and Statistics, 2019). Even though a higher percentage of women veterans than men veterans had a service-connected disability, a lower percentage of women veterans used Department of Veterans' Affairs (VA) healthcare through the Veterans' Health Administration (VHA; National Center for Veterans Analysis and Statistics, 2019). Veteran women experienced protective factors such as being more likely to get clinical breast exams, more likely to have health insurance, and more likely to have higher income and education levels

compared to civilian women (Lehavot & Simpson, 2013). However, compared to male veterans, women veterans are more likely to smoke, be overweight or obese, have cardiovascular disease, and have a depressive disorder (Han, Yano, Watson, & Ebrahimi, 2019; Lehavot et al., 2012) . Some of these negative outcomes may be due to potential exposure to combat and/or military sexual trauma during service combined with the higher risk of women veterans to lack social support compared to civilian women (Lehavot et al., 2012). Military sexual trauma (MST) is any incident of sexual harassment or sexual assault while a person is in the military. About 40% of all women veterans have experienced at least one instance of MST (Wilson, 2018). MST survivors are at an increased risk for physical and mental health difficulties as well as social and occupation problems (Lehavot et al., 2012; Wilson, 2018).

Women veterans are a minority group within the larger population of veterans that are continuing to grow. As the population and research base expand for this group, the field continues to learn more about their specific physical and mental health risks. For instance, women veterans are at a higher risk of chronic health concerns compared to their male peers which can lead to increased health utilization. Additionally, the high rates of MST noted above likely contributes to some of the physical and mental health disparities between veteran women and veteran men. Despite these disparities, women still face barriers to health service utilization, particularly within the VHA, that men do not face.

Racial/Ethnic Minority Veterans. Since the 1980s, racial and ethnic minority individuals have served in the military in increasing numbers. The National Center for Veterans Analysis and Statistics (2017) reports that in 2014 racial and ethnic minorities constituted 23% of the total veteran population in the United States. This percentage is expected to increase to 36% by 2040 (Office of Data Governance and Analytics, Department of Veterans Affairs, 2017). The

racial/ethnic distribution of veterans does not reflect the distribution of non-veterans in the United States. For instance, Black individuals make up 52% of the veteran minority population, but they only make up 32% of the civilian minority population. Hispanic individuals make up 46% of the veteran minority population, but they only make up 30.8% of the civilian veteran population. Asian individuals make up 6.7% of the veteran minority population, but they make up 15.1% of the civilian veteran population. American Indian and Alaskan Native, Native Hawaiian and other Pacific Islander, other race, and multiracial individuals all make up less than 7% of each of the veteran and non-veteran populations.

Racial and ethnic minority individuals have served in the United States military from its inception and, like civilian racial and ethnic minorities, have dealt with a variety of discriminatory experiences as a result of federal policies both in and outside of military service. “Blue ticket” or “blue discharges” were one type of discrimination in the Army and Army Air Corps that affected a large proportion of African American veterans during World War II (Petrik, 2019). “Blue discharges” were administrative discharges which defined a veteran’s service as being neither honorable nor dishonorable, were initially intended to be neutral discharges but became stigmatized in the civilian world which made it difficult for veterans to find work and progress in careers, and made veterans ineligible for education, health care, and other benefits from the Department of Veterans Affairs (Petrik, 2019). Between 1941and 1945, African Americans constituted 6.5% of the Army and received 22.2% of the blue discharges (Petrik, 2019). In addition to blue discharges, racial minorities as a whole endured segregation in the armed forces until 1963 (Glass, 2013). Problems for racial and ethnic minorities persisted after segregation officially ended in the military. For example, during the Vietnam-era death tolls for African Americans shifted drastically. During Vietnam War the death toll of African Americans

in combat went from 6.5% to 21% within a one-year span (Burk & Espinoza, 2012). This sparked outrage which led to a drop-in death rates the following year which prompted a pattern of decline until the war's end. Specifically, the racial tension that accompanied and followed blue discharges, integration, and disproportionate death tolls, led to riots during the Vietnam era which led to changes in policy and an investigation with recommendations to avoid future riots (Burk & Espinoza, 2012). However, despite some changes in policies, Black service members continued to make up a disproportionate amount of combat deaths as recently as the Persian Gulf War (Burk & Espinoza, 2012; Congressional Research Service, 2010).

More recently, African American and Hispanic service members face disparities in disciplinary action as they are more likely than White service members to face disciplinary action or be court martialed (Christensen & Tsilker, 2017; U.S. Government Accountability Office, 2019). Racial and ethnic minority individuals are also less represented in the higher ranks of the military. As military demographics are becoming more ethnically and racially diverse, racial and ethnic minority service members are not being promoted as often as their White counterparts, leading to fewer racial and ethnic minority higher-level leaders and causing the demographics of military leadership to be unrepresentative of the demographics of the force (Military Leadership Diversity Commission, 2010). From a history of discrimination rooted in segregation and discriminatory "blue discharges" to current disparities in disciplinary action and promotions, racial and ethnic minorities have faced obstacles to being treated equitably during the course of their military service.

The history of prejudiced separation, disproportionate discipline, and disparate opportunity for advancement to higher ranks, that racial and ethnic minority service members have experienced in the military since the 1940s, is, in many ways, reflective of the

discrimination that took place and continues to take place in the civilian realm. However, when these individuals transition to veteran status, their health care benefits work to set them apart from their civilian peers. Racial and ethnic minority veterans' health care tends to be more accessible than the health care of their racial and ethnic minority civilian peers. For example, racial/ethnic minority veterans (6.2%) are less likely to be uninsured than their civilian peers (22.5%; Saha et al., 2008). While racial/ethnic minority veterans have access to more care, there are disparities for these veterans compared to their White veteran peers. A systematic review of disparities among racial and ethnic minority veterans found that disparities in the VHA have the greatest effect on Black and Hispanic veterans (Saha et al., 2008). This review acknowledged that most studies look at disparities in the context of VHA care, which fails to give a comprehensive view of healthcare quality and usage among veterans as a whole.

A study by Sheehan and colleagues (2015) examined health of Black, Hispanic, and other ethnic minority group veterans and compared them to White Veterans who used VHA services and found that racial/ethnic minority veterans had higher odds of poor self-reported health compared to their White counterparts. The same study found that socioeconomic factors partially accounted for differences in veteran health (Sheehan et al., 2015). Most of the studies regarding racial/ethnic health disparities in veterans focus on comparing Black and White veterans (Saha et al., 2008; Sheehan et al., 2015). When examining healthcare usage and outcomes, there are physical and mental health differences among racial/ethnic minority veterans and White veterans (Saha et al., 2008). For instance, regarding arthritis and pain management as well as cancer treatments, Black veterans seem to be more reluctant to accept surgical interventions and aggressive courses of care than White veterans, even when medically necessary (Saha et al., 2008). Minority veterans also tend to have worse control of blood sugar, blood pressure, and

cholesterol compared to White veterans. Regarding infectious diseases, minority veterans tend to be diagnosed with HIV at a later stage and with more severe symptoms than their White counterparts (Saha et al., 2008). Black and Hispanic veterans with hepatitis C are less likely than White veterans to receive appropriate treatment and Hispanic veterans are more likely than White veterans to discontinue treatment for hepatitis C (Saha et al., 2008). Regarding mental health, Black veterans tend to be treated more frequently than White veterans for psychotic disorders and White veterans tend to be treated more frequently for affective and mood disorders. A lack of medical knowledge, mistrust of medical interventions, historical and personal experienced discrimination, systemic racism, and reliance on religious or spiritual mechanism for coping with health likely contribute to some of these disparities (Saha et al., 2008).

LGB+ Veterans. Typically, the acronym LGBTQ+ is used to refer to the larger community of gender and sexual minorities. Gender minority, gender diverse, and trans are all words that are typically associated with the term transgender, which is the T in LGBTQ+. This umbrella term of transgender, and more recently, trans, refers to an array of gender identities and expressions for people whose gender identity or expression differs from the sex that they were assigned at birth. However, as previously mentioned, this study will focus primarily on experiences with sexual orientation and thus will exclude individuals who identify as gender minorities. A study which included trans individuals would require a more comprehensive and focused recruitment plan in order to recruit sufficient gender diverse individuals for meaningful descriptive or inferential analyses. Throughout this thesis, the term sexual minority is used to describe individuals who self-identify their sexual orientation as anything other than heterosexual or straight, as well as individuals who engage in romantic or sexual relationships

with individuals with whom they share the same biological sex. The term LGB+ will be used interchangeably with sexual minority to refer to lesbian, gay, bisexual, and other sexual minority individuals.

Early estimates put the number of sexual minority veterans at about one million individuals, while sexual minority service members were estimated to be about 2-3% of the total armed forces. However, these statistics likely underestimated the total number of LGB+ service members and veterans due to historical policies that heightened fear of discrimination, punishment, and discharge related to holding a sexual minority identity (Gates, 2010). Indeed, the 2015 Department of Defense (DoD) Health Related Behaviors Survey of Active-Duty Service Members, the first survey to directly estimate the percentage of LGB+ service members, places the number of LGB+ service members at 5.8% or about 75,400 individuals (Meadows et al., 2018).

In recent years the amount of literature regarding LGB+ veterans and their health disparities compared to their heterosexual counterparts has increased greatly. Because of the sex and gender differences among men and women, most of the literature regarding health disparities delineates health risks by evaluating men and women separately. This means that when studying sexual minority individuals gay and bisexual (GB) men and lesbian and bisexual (LB) women are often evaluated as two separate groups.

Institutional Discrimination of LGB+ Veterans. The policies that were used as a form of institutional discrimination against LGB+ service members followed service members into their transition into civilian life. Policies targeting sexual minority service members such as blue discharges and other discharges that resulted in OTH discharges prevented these individuals from receiving veterans' benefits (Cianni, 2012). With OTH discharges, many LGB+ veterans

were not allowed to receive long-term health coverage or home loans, and the discharges were viewed negatively in society which made it more difficult for these veterans to find employment (Cianni, 2012). This left many LGB+ veterans at an economic disadvantage and with a general distrust of the military and the VA (Cianni, 2012; Evarts, 2017; Robinson-Thomas, 2018).

When LGB+ veterans utilized VHA services, the services that they received were not equitable to that of their heterosexual peers. For instance, before same-sex marriages were recognized, same-sex spouses were not allowed the same visitation rights as heterosexual spouses. Further, there was no requirement for providers to be knowledgeable about LGB+ issues and there was no specific guidance for providers regarding best practices with this population (Department of Veterans Affairs, Veterans Health Administration, 2017; Sharpe & Uchendu, 2014) .

As DoD policy started to shift to be more inclusive of LGB+ individuals, the VA followed suit. When elements of the Defense of Marriage Act (DOMA) were repealed in 2013, the VA started issuing benefits to same-sex spouses who lived in a state that permitted same-sex marriage at the time of their marriage or who lived in one of those states during their time in service. This paralleled the DoD's expansion in benefits for same-sex couples. Additionally, in 2013 the VHA incorporated providing quality, timely, safe, and equitable care for sexual and gender minority veterans into its five-year strategic plan. This plan included specific initiatives in which the VHA worked to create not only an equitable environment, but a welcoming one, for LGB+ veterans. Initiatives in the strategic plan included: establishing an Office of Health Equity to address health disparities linked to historical exclusion and/or discrimination, mandating nondiscrimination policies to include LGB+ veterans, revising official VHA language to be more inclusive, working with advocacy organizations to improve cultural competency of VHA staff

and work toward improved LGB outcomes, creating a welcoming environment through community outreach in local LGB+ events, creating and providing training for health care providers, and, allowing veterans to self-identify as LGB+ in order to track health and health equity (Sharpe & Uchendu, 2014). Likewise, in 2015 and similar to the DoD, after the DOMA was fully repealed, the VA extended benefits to all same-sex spouses regardless of their current or previous state of residency (Department of Veterans Affairs, Office of Public and Intergovernmental Affairs, 2015). In 2017, the VHA released VHA Directive 1340 entitled *Provision for Health Care for Veterans who Identify as Lesbian, Gay, or Bisexual* that "establishes VHA policy for the equitable, respectful, and affirming delivery of clinically appropriate health care to lesbian, gay, and bisexual (LGB) Veterans" (Department of Veterans Affairs, Veterans Health Administration, 2017). This policy was part of the aforementioned strategic plan and was the first VHA policy explicitly calling for LGB+ veterans to have the same high-quality care as their heterosexual peers.

Institutional Discrimination of LGB+ Service Members. The U.S. military has had overt and covert policies that allowed for the removal of sexual minorities from military service on the basis of sexual orientation and same-sex sexual activity since before World War I (WWI). For instance, while not directly outlawing homosexuality, sodomy was a crime punishable by discharge from the military as far back as 1778 when sexual minority individuals were discharged in the Continental Army. During and after WWI, "blue" discharges were used to remove sexual minority service members from service. These administrative discharges were deemed OTH and service members given these discharges were subjected to discrimination in civilian life, including denial of VA benefits. Further, the negative connotation of the blue

discharge often made it more difficult for individuals to find employment outside the military (Cianni, 2012).

In 1982, the DoD issued its first written policy explicitly banning LGB+ individuals from serving. This policy declared that "homosexuality is incompatible with military service." From 1980 to 1990, approximately 1,500 service members were discharged every year under the discharge category of "homosexuality." Service members could be separated with the discharge category of "homosexuality" alone, which could receive an honorable discharge. However, in rare cases, the service member could also face court-martial under charges of sodomy, indecent acts, or behavior unbecoming of a service member. Like the blue discharges, if a service member was convicted of these charges, they could receive an OTH discharge (United States General Accounting Office, 1992; University of Southern California, Suzanne Dworak-Peck School of Social Work, 2018).

In 1993, President Clinton signed "Don't Ask, Don't Tell" (DADT) which upheld the prohibition of sexual minorities serving openly in the military. However, DADT allowed closeted service members to serve and prohibited harassment and discrimination of closeted service members. DADT required concealment of sexual orientation in sexual minority individuals and stated that homosexuality "interferes with combat effectiveness, including unit morale, unit cohesion, and individual privacy," assertions not supported by research (Goldbach & Castro, 2016; Moradi, 2009; United States General Accounting Office, 1992; University of Southern California, Suzanne Dworak-Peck School of Social Work, 2018). Approximately 13,000 additional service members were discharged following the signing of DADT (Burks, 2011). Under DADT, sexual stigma, discrimination, and conservative beliefs about gender roles

increased LGB+ victimization, decreased reporting and help seeking in this population, and prevented research on sexual minorities in the military (Burks, 2011; Goldbach & Castro, 2016).

In early 2011, the Office of the Under Secretary of Defense informed the military secretaries via memorandum of the approaching repeal of DADT (Stanley, 2011). The memorandum outlined that immediately upon repeal, LGB+ individuals were no longer allowed to be separated from military service based on sexual orientation and all pending investigation, separation, discharge, and administrative proceedings were to cease immediately (Stanley, 2011). Although this lessened some of the institutional discrimination against LGB+ military families, they still lacked equal benefits compared to heterosexual military families. By early 2013, the Secretary of Defense guaranteed almost all of the same benefits that heterosexual couples had would be extended to LGB+ couples. However, this early 2013 memorandum reiterated the discrepancy of benefits between LGB+ couples and heterosexual couples stating that health care and housing allowances were available only to heterosexual couples (Panetta, 2013). Later in 2013, the military extended benefits to all same-sex spouses with a marriage certificate. As previously stated, benefits were also extended to LGB+ veterans. After the complete repeal of DOMA, the military allowed for time off of work for military members to travel to jurisdictions in which same-sex marriage was legal in order to officially get married (Department of Defense Public Affairs, 2013).

To summarize, sexual minority service members and veterans have endured a history of discrimination within the military that has shifted towards a pathway to equity in the last decade. Policies that allow LGB+ service members to serve openly have led to increased research about the unique needs of individuals in this community. Typically, these needs are described in terms

of health risks of male and female sexual minority service members and veterans. As such, the primary healthcare concerns of both groups are summarized in the following paragraphs.

Lesbian and Bisexual (LB) Veterans' Health. Lesbian and bisexual women (LB) veterans' health is often evaluated in comparison to civilian LB women, heterosexual veteran women, and GB veteran men. LB veterans have been found to be at higher risk for lifetime sexual violence, depression, suicidal ideation, PTSD, heavy drinking, obesity, asthma, and cardiovascular disease (CVD) compared to heterosexual veteran women and veteran men (Blosnich, et al., 2013a; Cochran, et al., 2013; Mattocks et al., 2013; Ruben, Blosnich, et al., 2017). Booth and colleagues (2011) also found that having female sexual partners was the single-best predictor of lifetime substance abuse for veteran women when adjusting for sexual orientation and demographic factors. The 2010 Behavioral Risk Factor Surveillance System (BRFSS) survey, which surveys health-related information for adults in the US, found that LB veterans reported more sleep problems, distress, and lower life satisfaction compared to both straight veterans and LB non-veterans (Kauth et al., 2014). LB veterans were more likely than heterosexual veteran women to have been raped during their lifetime (73% vs 48%, respectively) and to have experienced forced sexual contact while in the military (31% vs. 13%, respectively) (Booth et al., 2011). MST has been associated with alcohol use disorders, anxiety, liver disease, chronic obstructive pulmonary disease, and obesity in LB women (Kauth et al., 2014).

Gay and Bisexual (GB) Veterans' Health. Gay and bisexual (GB) male veterans face unique physical and mental health risks as well. Compared to their heterosexual veteran peers, they are more likely to screen positive for depression, PTSD and alcohol use disorder, while having higher rates of smoking, asthma, and physical inactivity (Blosnich and Silenzo; Kauth 2014). While they are at increased risk of sexually transmitted diseases compared to heterosexual

veterans, they were found to be more likely than their heterosexual veteran peers to have been tested for HIV (Kauth et al., 2014). Kauth and colleagues (2014) also suggest that GB veterans may be at a higher risk than their heterosexual peers for sexual victimization and less likely to report military sexual trauma.

LGB+ Veterans' Healthcare Utilization. Although LGB+ veterans are at greater risk for both physical and mental health concerns than their heterosexual peers, they show approximately the same rates of healthcare utilization in the VHA as their heterosexual peers (Simpson, Balsam, Cochran, Lehavot, & Gold, 2013). Simpson and colleagues (2013) found that about 46% of LGB+ veterans utilize VHA healthcare in their lifetime and about 29% reported utilizing VHA healthcare in the past year. They also found that LGB+ veterans who utilized VHA services in the past year were more likely than those who did not use VHA services to be women, screen positive for PTSD and depression, have lower physical functioning, have a history of military trauma related to LGB+ status, and have no history of the military investigating or punishing their LGB+ status (Simpson et al., 2013). Sexual minority service members have been allowed to openly serve in the military less than a decade. Thus, literature is scarce regarding health care utilization of LGB+ veterans, especially those who seek care outside of the VHA, but anecdotes suggest that many LGB+ service members choose to seek health care outside of the military rather than utilize the military's free universal health care (Goldbach & Castro, 2016). Thus, it seems logical to posit that many LGB+ veterans likewise may seek care outside of the VA.

Therefore, it is vital to understand LGB+ veterans' health care experiences more broadly to better understand disparities in physical and mental health as well as utilization. While women veterans and racial and ethnic minority veterans have been allowed to openly serve for decades, albeit with obstacles grounded in discrimination, this has not been the case for sexual minority

veterans. Sexual minority veterans have been able to serve openly and with equal protections and benefits for less than a decade. These individuals also experience a myriad of health disparities including increased risk for PTSD, depression, asthma, obesity, and more compared to their heterosexual veteran peers. It is important to understand the unique experiences of sexual minority veterans, especially those involving institutional discrimination, in order to gain a better understanding of their health disparities.

Minority Stress Model

The minority stress model provides a framework for contextualizing the health disparities often seen between sexual minority individuals and their heterosexual peers. A key tenet of the minority stress model is that LGB+ individuals experience unique chronic stressors by virtue of their sexual minority status which affect their well-being across multiple areas and ultimately fuel persistent health disparities. Within this model, there are two types of stressors, distal and proximal stressors, which become sources of chronic stress and reduced well-being in this population.

Distal Stressors

Distal stressors are objective discriminatory and victimizing conditions and events in the social environment that are unique to sexual minority individuals. Distal stressors encompass experiences of discrimination, harassment, victimization, and physical or sexual violence based on one's sexual orientation. Indeed, research has repeatedly supported that sexual minority individuals frequently report experiencing distal stressors. For example, a national study of cisgender sexual minority adults documented that nearly 20% had experienced antigay violence. A more recent 2017 representative national study of discrimination experienced by adults in the United States found that 60% of LGBQ+ people (including trans individuals who identity as

LGBQ+) stated that they had been the target of homophobic slurs and 51% reported that others made insensitive or offensive comments directed towards them. More striking, 57% of LGBTQ+ individuals reported that they or an LGBTQ+ friend or family member had been threatened with physical harm and 51% had personally experienced violence or had a friend or family member experience violence due to being LGBTQ+. Looking specifically at healthcare, a study by Lambda Legal (Lambda Legal, 2010) defined discrimination based on sexual orientation using the following experiences: being refused health care, having healthcare professionals refuse to touch a patient or using unnecessary safety measures, having a healthcare professional use abusive or harsh language, a patient being blamed for their health status, or having a health care professional that is physically abusive or rough. This study found that more than half (56%) of sexual minority individuals experienced at least one form of discrimination in healthcare (Lambda Legal, 2010). Overall, it is evident that LGB+ individuals experience high rates of distal stressors in the forms of individual and interpersonal discrimination, harassment and violence. Although the research on LGB+ adults is growing, the research on LGB+ veterans is lacking. However, high rates of discrimination, antigay harassment, and victimization because of sexual orientation in the military were documented under DADT and were likely underreported due to fear of further harm, being outed, and fear of discharge (American Psychological Association [APA] Society of Military Psychology [Division 19], APA Society for the Psychological Study of Lesbian Gay, and Bisexual Issues [Division 44], & Joint Divisional Task Force on Sexual Orientation and Military Service, 2009; Blosnich, et al., 2013; Burks, 2011; Johnson & Buhrke, 2006).

Proximal Stressors.

Experiences with these objective discriminatory stressors can lead to proximal stressors, which are the damaging direct results of negative experiences with distal stressors and often lead an individual to view elements of their environment as threatening. Examples of proximal stressors include concealment of one's sexual orientation and internalized heterosexism. A 2013 survey by the Pew Research Center found the majority of LGB adults have told at least one close friend about their sexual orientation with the percentage ranging from 96% of gay men and 94% of lesbian women to 79% of bisexual adults (Pew Research Center, 2013). While a large majority of sexual minority individuals are out to at least one person, fewer LGB adults are out to all of the important people in their lives. The same study found that almost one quarter of gay and lesbian individuals are not out in their sexual orientation to all or most of the most important people in their lives (Pew Research Center, 2013). Additionally, as social distance increases, the percentage of individuals who are out decreases. For instance, concealing one's sexual orientation is fairly common in the workplace. While recent data has yet to be published on sexual minority individuals alone, a report by the Human Rights Campaign (HRC) found that approximately 46% of LGBTQ workers are closeted at work (Fidas & Cooper, 2018). In healthcare settings, where 56% of LGB individuals report experiencing discrimination, between 10 and 40% of individuals report concealing their sexual minority status from a healthcare provider (Durso & Meyer, 2013; Lambda Legal, 2010).

Internalized heterosexism, another proximal stressor, is described as negative views about sexual minority individuals that someone incorporates into the way that they view themselves as a result of living in a heterosexist society. Internalized heterosexism includes anxiety related to one's sexual orientation as well as rejection of one's sexual orientation and attempted avoidance of same-sex attraction, sexual, or romantic feelings (Frost & Meyer, 2009). The construct of

internalized heterosexism is also referred to as internalized homophobia, internalized homonegativity, and internalized stigma within the literature (Puckett et al., 2017; Szymanski, Kashubeck-West, & Meyer, 2008b; Szymanski, Kashubeck-West, & Meyer, 2008a). Studies using measures of these constructs have found that most sexual minority individuals tend to endorse some level of internalized heterosexism, although generally at a low level (Whitehead, Shaver, & Stephenson, 2016). Internalized heterosexism is so much a part of the LGB experience that overcoming this particular proximal stressor is considered a stage in sexual minority identity formation (Cass, 1984; Greene & Britton, 2012). Notably, a study by Walch and colleagues (2016) found that men score significantly higher than women on internalized heterosexism measures (Walch, Ngamake, Bovornusvakool, & Walker, 2016). In military populations, the hypermasculine and heteronormative culture of the military may lead to heightened feelings of internalized heterosexism (Lehavot & Simpson, 2013). However, most of the data about proximal stressors comes from civilian populations. In military and veteran populations, where concealment at work was a job requirement until recent years, the data on the prevalence of these proximal stressors is deficient.

Anticipated stigma is a third proximal stressor that refers to apprehension about a potential future experience of discrimination. Anticipated stigma has been hypothesized as one of the reasons that sexual minority individuals avoid and delay receiving healthcare (Lambda Legal, 2010; Whitehead et al., 2016). Additionally, higher levels of anticipated stigma are associated with lower levels of disclosure of sexual orientation to health care professionals (Austin, 2013). Research supports that anticipated stigma is prevalent among sexual minority individuals (Whitehead et al., 2016). A study by Lambda Legal found that 28.5% of sexual minority individuals said that the anticipated stigma of being treated differently in a health care

setting because of their sexual orientation was a barrier to health care (Lambda Legal, 2010). Likely contributing to this anticipated stigma is the climate of the communities in which these individuals live. The same study showed that over half (52.4%) of sexual minority respondents also saw community fear or dislike of sexual minority individuals as a barrier to care. Anticipated stigma and the climate that breeds this stigma can lead to healthcare disparities by contributing to delay and avoidance of care. LGB+ individuals experience anticipated stigma in other settings as well. HRC found that 38% of closeted LGBTQ workers fear being stereotyped at work, 31% worry about potentially losing connections or relationships with colleagues, and 20% of LGBTQ employees have stayed home from work because of an unaccepting work environment (Fidas & Cooper, 2018). Anticipated stigma is associated with barriers to health care, fear of losing interpersonal relationships, and work attendance, which can all serve as stressors for sexual minority individuals. While this concept has not been examined in-depth in veteran populations, it would make sense that past negative experiences with military or veteran health care prior to DADT and the expansion of coverage to same-sex spouses, could contribute to anticipated stigma.

To summarize, the minority stress model describes distal and proximal stressors as two primary sources of chronic stress in these populations. Empirical work supports that distal stressors are experienced by a majority of LGB+ individuals, typically ranging from 50%-60% of LGB+ individuals surveyed, with lower prevalence rates for anti-LGB+ violence at around 20%. Proximal stressors, however, are reported by a lower proportion of LGB+ individuals with around 10-40% of LGB+ individuals endorsing these stressors, with a higher prevalence rate for concealment at around 70-80%. This overall pattern of higher amounts of distal stressors compared to proximal stressors supports the model in suggesting that these are two distinct

categories. Further the data suggests that all experiences with discrimination and distal stressors do not necessarily lead to proximal stressors. This leads to the final piece of the minority stress model, the mitigating impact of resilience factors.

Resilience Factors.

Although sexual minority individuals experience unique stressors that can lead to poorer health outcomes compared to their heterosexual peers, there are also unique resilience factors that can buffer the negative effects of these stressors. Resilience is defined as the ability to thrive in adversity and includes anything that leads to positive adaptations under minority stress (Meyer, 2015). For LGB+ veterans and LGB+ non-veterans alike, these individual and community mechanisms can include pride about being LGB+, self-identity as an LGB+ individual, supporting and affirming interpersonal and romantic relationships, as well as community engagement and activism (Gitlin & Kauth, 2019; Meyer, 2015; Rubino, Case, & Anderson, 2018). About 75% of LGB adults report the presence of resilience factors in their lives (Russell & Richards, 2003). Meyer (2015) suggests that these resilience factors can help provide a more comprehensive picture of the way that the environment can both contribute to and mitigate negative outcomes. Notably, resilience factors have not been examined in the context of the minority stress model for LGB+ veterans or service members.

The existing literature regarding the minority stress model shows that distal and proximal stressors are prevalent in the sexual minority community. Early on, the majority of the research about this model focused on civilian sexual minority populations, but in recent years the field has started to examine the way that this model applies to sexual minority military personnel and veterans. These discriminatory and victimizing experiences and their damaging consequences can exist on their own and influence each other to contribute to health disparities in sexual

minority individuals compared to their heterosexual peers. Additionally, there are individual and community mechanisms related to identity and social support that can help sexual minority individuals adapt and thrive in the face of these stressors. The negative effects of these stressors can be operationalized across physical and mental health conditions as well as health behaviors and will be discussed in the Outcomes section.

Gender

In previous research, some findings have supported that gender moderates the relation between minority stress variables and outcomes. For example, in a sample of sexual minority adults in the California Quality of Life survey, gender moderated the relation between sexual orientation concealment and mental health, such that sexual minority men who disclosed their sexual orientation had higher odds of having depression compared with men who conceal their sexual orientation, while women's odds of depression did not change with concealment status (Pachankis et al., 2015). It is hypothesized that this gender effect is due to the higher "cost" of disclosure for sexual minority men as men tend to experience more heterosexist victimization compared to sexual minority women (Pachankis et al., 2020). Similarly, in a study of Italian lesbian and gay adults, gender moderated the relation between coming out to siblings and internalized sexual stigma, such that coming out to siblings was associated with lower levels internalized stigma in gay men, but not in lesbian women (Salvati et al., 2018). For both of these studies gender moderated the effect of disclosure of sexual orientation in men but not women. Another study found a similar effect regarding disclosure, but the effect was only seen in women, not men (Rothman et al., 2012). Specifically, Rothman and colleagues (2012) found that disclosing one's sexual orientation to one's parents was associated with lower odds of depression and drug use for sexual minority women, but not for sexual minority men. Finally, in a study

examining minority stress, rumination, and psychological distress in LGB adults, sex moderated the relation between expectations of rejection and distress, and the relation from self-stigma to distress, both of which were stronger for men than for women (Timmins et al., 2020).

However, other studies either had mixed results or failed to find that gender acts as a moderator between minority stress variables and mental health outcomes. For example, in the aforementioned study of LGB adults, sex did not moderate the relations between outness and distress, and prejudice events and distress (Timmins et al., 2020). Another study by Feinstein and colleagues (2019) examined associations between outness and health outcomes, including marijuana use, illicit drug use, and depression in LGB young adults. In their longitudinal study, they did not find gender to be a moderator in the relation between sexual orientation disclosure and any of their outcome variables.

In summary, in civilian sexual minority samples, there is emerging but mixed support for gender as a moderator in the relation between minority stress and mental health concerns. When there is a difference in effect of minority stress for men and women, there has generally been a stronger effect for men and little to no effect for women. When gender moderated the relation, the social costs for disclosure of sexual orientation was suggested as a reason for stronger effects. Thus, given the body of the existing evidence, it seems reasonable for gender to be examined in an exploratory manner as a moderator of the relation between minority stress and healthcare utilization.

Outcomes

Mental Health. When the minority stress model is evaluated among different groups of LGB+ individuals, the primary outcomes focus on mental health symptomology and adjustment, substance use, and physical health (Blosnich, et al., 2016; Frost, et al., 2015; Kauth et al., 2014;

Livingston, et al., 2019; Meyer, 2003). Mental health and mental health conditions are one of the primary outcomes assessed when examining health disparities between sexual minority individuals and their heterosexual peers. Compared to their heterosexual peers, sexual minority individuals have higher rates of anxiety, depression, and suicidal ideation and behavior (Institute of Medicine, 2011). Proximal stressors have been directly associated with mental health symptoms in LGB+ individuals. For instance, in a veteran sample, anxiety about concealing sexual orientation in service predicted current PTSD and depression among LGB veterans (Cochran et al., 2013). Internalized heterosexism is, in turn, associated with anxiety, depression, suicidal ideation, loneliness, lower self-esteem, and general emotional distress (Lehavot & Simoni, 2011; Newcomb & Mustanski, 2010). With more than half of sexual minority individuals experiencing at least one instance of discrimination in health care, it makes sense that anticipated stigma and/or fear of discrimination may prevent individuals from accessing care for their mental health concerns in a timely manner which can allow for time for symptomology to worsen (Whitehead et al., 2016). Thus, literature supports that distal stressors like discrimination and harassment may lead to proximal stressors like concealing sexual minority status, internalized heterosexism, and anticipated stigma, that are associated with anxiety, depression, suicidal behavior, and PTSD, as well as delayed help seeking.

Substance Use. Substance use is another outcome that has been examined from within the minority stress model (Lick Durso, Johnson, 2013; Kauth et al., 2014; Lehavot & Simoni, 2011; Meyer, 2003). Compared to their heterosexual counterparts, GB men tend to be a greater risk for illicit drug use and related problems (Green & Feinstein, 2012; Lehavot & Simoni, 2011; McCabe et al., 2009). LB women tend to be at greater risk for alcohol and substance use disorders and related problems compared to heterosexual women. Research has supported that

internalized heterosexism is linked to greater alcohol use in sexual minority women (Amadio, 2006). Similarly, Lehavot and Simoni (2011) found direct links between LGB victimization and internalized heterosexism and substance use among sexual minority women. More broadly, experiencing discrimination based on sexual orientation in the past year is associated with a higher likelihood of having experienced a substance use disorder in the past year for all sexual minority individuals (McCabe, Bostwick, Hughes, West, & Boyd, 2010). Looking at smoking specifically, a review of tobacco disparities for sexual minorities suggested that sexual minority individuals experience risk factors for smoking such as stress, depression, alcohol use, and victimization at higher rates for compared to their heterosexual peers. This constellation of risk factors is the suggested explanation for the higher rate of tobacco use in the LGB community (Blosnich et al,, 2013). Overall, distal and proximal stressors such as experiencing discrimination, victimization, internalized heterosexism, as well as risk factors like stress and depression, put sexual minority adults at greater risk for alcohol and substance use and related disorders.

Physical health. Physical health has more recently been examined in work evaluating health disparities between LGB+ individuals and their heterosexual peers. Links to physical health disparities and sexual minority status have been both theorized and backed by the literature (Blosnich et al., 2013; Cole, Kemeny, Taylor, & Visscher, 1996; Denton, 2012; Frost et al., 2015; Institute of Medicine, 2011; Mark et al., 2019). Frost, Lehavot, and Meyer (2015) found that experiences of prejudice have negative effects on physical health, above and beyond stressful life events that do not involve prejudice, even though there is no single, uniform way in which prejudice events affect the physical health of sexual minority individuals. For example, women in same-sex partnerships were more likely to have heart disease, diabetes, and asthma

than their peers in opposite sex partnerships. Heart disease differences persisted when controlling for smoking and BMI. It has been suggested that the significantly higher risk of heart disease among LGB+ adults is associated with minority stress and the unique, ongoing, and compound minority stress of being a sexual minority (Blosnich, et al., 2016). Literature evaluating specific types of distal and proximal stressors is sparse, though some have been examined in the context of physical health outcomes. Concealment of one's sexual orientation has been associated with worse immune function and higher incidence of cancer, and progression of HIV, when compared with sexual minority individuals who did not conceal their identity (Cole, Kememny, Taylor & Visscher, 1996). Additionally, if a person is not out to their health care provider, they may forego screenings for cancer and other physical health problems, even if at risk for these outcomes. Minority stress can cause psychological and physiological stress responses that can in turn affect health status (Lick et al., 2013). Initial research supports that experiences with minority stress in general can cause physiological stress upon the body. Stress from events of discrimination, victimization, concealment of sexual minority status, are related to physical health effects such as heart disease, diabetes, asthma, immune function, and progression with HIV, that affect sexual minority individuals at higher rates than their heterosexual peers. However, work examining at the specific effects of different types of distal and proximal stressors on specific physical health outcomes is limited.

Healthcare Utilization. One of the least-studied outcomes related to the minority stress model is health care utilization. A lack of utilization and access to care can lead to poorer health outcomes, but poorer health outcomes can lead to a lack of utilization of care as well. Mental health conditions, substance use, and physical health problems all affect utilization, thus it is vital to study utilization within the framework of minority stress in order to better understand

health disparities between LGB+ individuals and their heterosexual counterparts (Alegria Drury & Louis, 2002; Kondo et al., 2017; Livingston, Milne, Fang, & Amari, 2012; Pietrzak, Johnson, Goldstein, Malley, & Southwick, 2009; Trivedi et al., 2015; Whitehead et al., 2016).

The majority of literature examining healthcare utilization as an outcome of the minority stress model focuses on civilian populations. Existing literature examining healthcare utilization in LGB+ populations has explored frequency of heath care visits in the past year, health insurance status, having a primary care provider (PCP), and preventative care utilization, including recommended screenings and vaccinations (Baptiste-Roberts, Oranuba, Werts, & Edwards, 2017; Whitehead et al., 2016). However, few studies use distal and proximal stressors to explain these disparities. For instance, sexual minority individuals are more likely than heterosexual individuals to delay care for non-cost reasons, but few studies examine whether hypothesized stressors like past discrimination and victimization, anticipated stigma, and internalized heterosexism contribute to delaying care or underutilization (Hsieh & Ruther, 2017). One study of rural sexual minority individuals found that degree of disclosure of sexual orientation was significantly associated with increased health care utilization, such that those who were more out utilized primary care more often and were more likely to have received recommended vaccinations (Whitehead et al., 2016).

In veteran populations, research has specifically examined distal and proximal stressors and the effects on health care utilization. Regarding distal stressors, harassment and trauma based on sexual minority status have been associated with decreased health care utilization in sexual minority veterans. Data from 2015 found that LB women veterans were more likely than their heterosexual peers to feel unwelcome in a VHA setting and report harassment (Shipherd,

Darling, Klap, Rose, & Yano, 2018). More broadly, LGB+ veterans with at least one LGB+ interpersonal trauma had an increased use of VHA services (Simpson et al., 2013).

Proximal stressors like anticipated stigma and concealment of sexual orientation also play a role in health care utilization. One study found reports of some LGB+ women veterans delaying or forgoing care because of concerns related to interacting with other veterans (Shipherd et al., 2018). Another study found that LGB+ veterans with a history of distress due to military investigation related to their sexual orientation had decreased utilization (Simpson et al., 2013). A review of the literature of current and former sexual minority service members found that both groups are concerned that disclosure of their sexual identity may increase their chances of receiving disrespectful comments or lower quality care in medical settings (Mark et al., 2019). Further, preventative health care utilization has rarely been examined as an outcome in the minority stress model and has not been evaluated in the context of LGB+ veterans (Whitehead et al., 2016). However, the VHA has recommendations for health concerns and preventative care that GB men and LB women should discuss with their provider, but fidelity to these recommendations are rarely evaluated in the literature (Veterans Health Administration, Patient Care Services, 2018).

While the research on veterans' health care utilization is more specific than in civilian populations, the research tends to exclude a large number of LGB veterans in that studies typically only include LGB+ veterans who utilize VHA facilities. However, only 30% of sexual minority veterans utilize a VHA health care facility in a given year (Simpson et al., 2013). While this is comparable to heterosexual veteran populations, it means that more than two-thirds of LGB+ veterans are not included in assessments of health care utilization. Further, much of the research on sexual minority veterans' utilization fails to examine disparities through a lens that

includes discrimination and harassment. For instance, a study by Blosnich and colleagues (2013) operationalized health care utilization by combining use of VHA facilities in the past year, having health insurance, and delaying care due to cost. Blosnich and colleagues found no significant differences between sexual minority veterans and heterosexual veterans in their operationalized definition of health care utilization. While this study evaluated factors that are particularly relevant and typically affect healthcare utilization in heterosexual individuals, their operationalization did not incorporate the unique stressors that affect sexual minority individuals, such as experiences with harassment and discrimination. However, when Shipherd and colleagues (2018) incorporated experiences with harassment and discrimination into reasons for delaying care, they found that sexual minority women were more likely than heterosexual women to delay care due to harassment at the VHA that led to them feeling unwelcome. This suggests that examining these disparities through the lens of the minority stress model may more thoroughly explain some of the disparities in this outcome.

***Covariates*.** There are a variety of demographic characteristics that have been found to be associated with healthcare utilization including age, gender, bisexual/pansexual identity, race, Hispanic/Latino/a ethnicity, chronic physical health conditions, and chronic mental health conditions. Regarding age, both older and younger age have been associated with increased healthcare utilization in veteran samples, but most studies find that as age increases, health care utilization increases (Elhai, et al, 2008; Hom et al, 2017; Lee et al.,2015; Harris et al., 2014). Women also engage in greater healthcare utilization than men, including among veterans (Elhai, et al., 2008; Haskell et al., 2011; Harris et al, 2014). Belonging to a minority racial group has been associated with increased healthcare utilization in veteran populations relative to White individuals; however, it has been associated with delay of care and lack of usual place for care in

studies comparing European American and racial/ethnic minority LGB+ adults (Harris et al., 2014; Koo et al., 2015; Macapagal et al., 2016). Hispanic/ Latino/a ethnicity has been associated with higher health care use when compared to Non-Hispanic/Latino/a veterans (Harris et al., 2014; Koo et al., 2015; Weitlauf et al., 2020). Bisexual individuals are less likely to disclose their sexual orientation to healthcare providers relative to gay/lesbian individuals, and as such are less likely to receive necessary preventative healthcare (Durso & Meyer, 2013). Additionally, compared to lesbian/gay and queer/questioning individuals, bisexual individuals are less likely to have access to care, a usual place for care, and are less likely to be out to their provider, all of which contribute to lower healthcare utilization (Macapagal et al., 2016). Poorer mental health, including endorsing a mental health condition has associated with increased health utilization in veteran populations (Elhai, et al., 2008; Harris et al., 2014; Simpson et al., 2014). Similarly, having poorer physical health and chronic physical health conditions have been associated with increased health utilization in civilian and veteran populations (Elhai, et al., 2008; Harris et al., 2014; Drury & Louis, 2002; Simpson et al., 2014).

Overall, health care utilization is related to other outcomes such as mental and physical health care as well as individual distal and proximal stressors like discrimination, harassment, anticipated stigma, and concealment of sexual orientation. In order to better understand health disparities, it is important to understand not only what disparities exist, but what unique stressors prevent sexual minority individuals from utilizing health care. To date, the literature regarding the way these stressors influence health care utilization is lacking and research on sexual minority veterans has included LB women veterans only and largely fails to include veterans who do not use VHA health care.

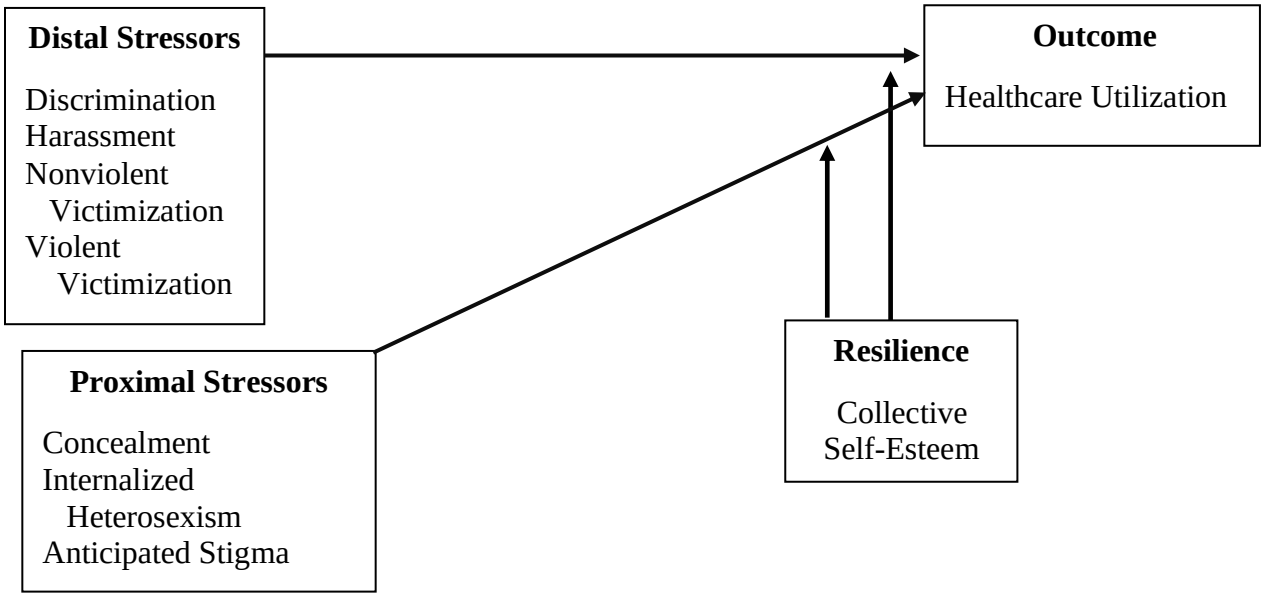
The Current Study

Many studies have examined the differences in health outcomes of veterans compared to non-veterans and LGB+ individuals compared to their heterosexual peers. However, few studies have looked at health outcomes of LGB+ veterans. Further, the minority stress model is often used when examining the stressors that lead to negative health outcomes in LGB+ individuals, but distal processes, proximal processes, and resilience factors have not been looked at together to evaluate how they are related to LGB+ veterans' health outcomes. The purpose of the current study is to utilize a cross-sectional online survey to examine the direct and indirect impact of minority stress during military service on health care utilization among sexual minority veterans. The results may assist in identifying which individual aspects of minority stress contribute to health care utilization. The results may also provide targets to improve overall health of sexual minority veterans.

Aim 1: Examine the applicability of the minority stress model in predicting healthcare utilization in sexual minority veterans. The theory suggests that discrimination, harassment, and violent and non-violent victimization experienced by sexual minority individuals (distal stressors) and subsequent sexual orientation concealment, internalized heterosexism, and anticipated stigma (proximal stressors) that result in negative physical and mental health outcomes may lead to increased healthcare utilization. The theory suggests that physical and mental health outcomes should be buffered by resilience, including collective self-esteem which encompasses pride, identity, and community belongingness [See Figures 1 and 2.]

Figure 1

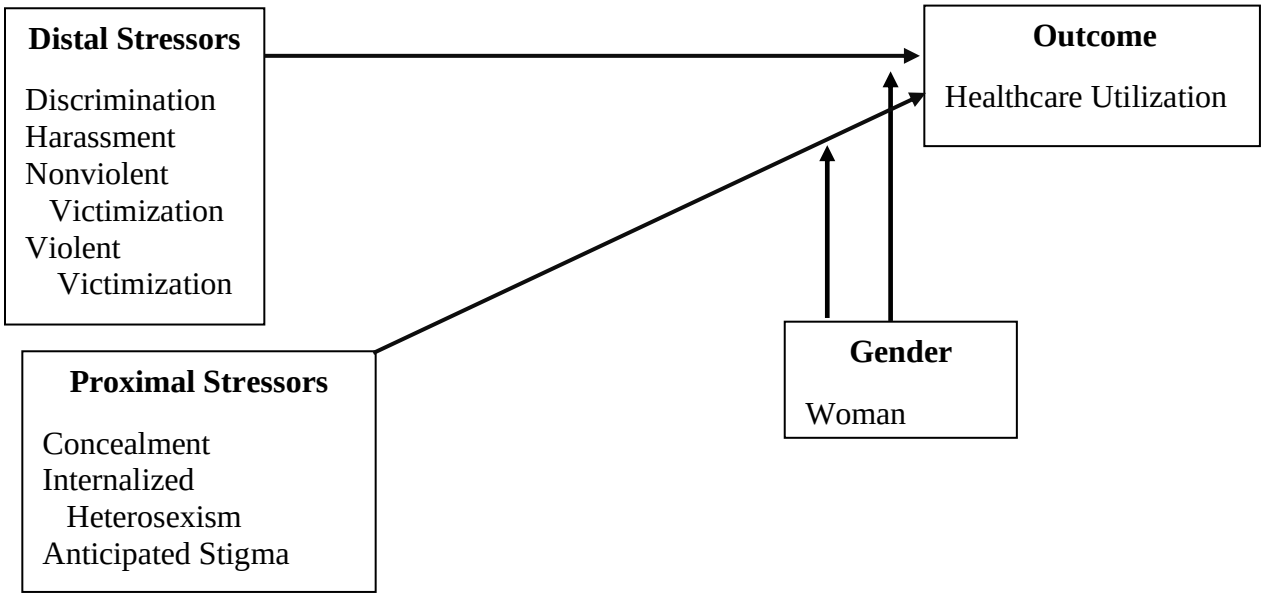
Minority Stress Model with Resilience as a Moderator



Note. Moderation model with resilience as a moderator. Adapted from Meyer, IH. Prejudice, Social Stress, and Mental Health in Lesbian, Gay, and Bisexual Populations: Conceptual Issues and Research Evidence. *Psychol Bull.* 2003 September; 129 (5): 674-697.

Figure 2.

Minority Stress Model with Gender as a Moderator



Note. Moderation model with gender as a moderator. Adapted from Meyer, IH. Prejudice, Social Stress, and Mental Health in Lesbian, Gay, and Bisexual Populations: Conceptual Issues and Research Evidence. *Psychol Bull.* 2003 September; 129 (5): 674-697.

Hypothesis 1: Distal minority stressors (discrimination, harassment, nonviolent victimization, and violent victimization) would predict healthcare utilization in accordance with the minority stress model.

Hypothesis 2: Proximal minority stressors (concealment, internalized heterosexism, and anticipated stigma) would predict healthcare utilization in accordance with the minority stress model.

To test hypotheses 1 and 2, hierarchical regressions were run predicting healthcare utilization. Covariates associated with healthcare utilization (age, gender, presence of physical or mental chronic health condition, ethnicity, race, and bi+ sexual orientation) were entered into step 1. Age was a continuous variable while all other covariates were dichotomous variables.

Distal stress variables (discrimination, harassment, nonviolent victimization, and violent victimization) were entered in step 2. Proximal stress variables (concealment, internalized heterosexism, and anticipated stigma) were entered into step 3. The resilience variable (collective self-esteem) was entered in step 4. The variables were entered in this order to illustrate the way that experiences with distal stressors influence proximal stressors and then the way that resilience factors may affect healthcare utilization.

Aim 2: Examine whether resilience functions as a moderator of healthcare utilization.

Hypothesis 3: There would be significant interactions between minority stress factors and resilience factors, such that both distal minority stress and proximal minority stress would be weaker predictors of healthcare utilization as resilience increased.

Aim 3: Examine whether gender functions as a moderator of healthcare utilization.

Hypothesis 4: There would be significant interactions between minority stress factors and gender, such that both distal minority stress and proximal minority stress would be weaker predictors of healthcare utilization for men compared to women.

To test hypotheses 3 and 4, similar regression approaches were used. Using the macro-program PROCESS 3.5 in SPSS Statistics Version 26.0 (Hayes, 2017) seven simple moderation models were examined to see if resilience (for hypothesis 3) or gender (for hypothesis 4) moderated the relationships between each of the minority stress variables and healthcare utilization. In each model the seven demographic covariates and other six predictor variables were held constant. The slope of the interaction term of the minority stress variable and the moderator variable were examined for each model. Significant interactions with p values of $<.05$ were considered evidence of moderating effects, and post-hoc probing was completed when necessary to determine the nature of these interactions (Holmbeck, 2002).

Chapter 2: Method

Study Design

Participants

Participants included 200 individuals who served in the United States Armed Forces since the repeal of DADT on September 20, 2011, who identified as cisgender sexual minority individuals or engaged in sexual behavior with someone of the same sex. Additionally, participants were at least 18 years of age and able to read and write in English. Because this study focused primarily on sexual minority veterans, gender minority individuals were excluded. Participants were recruited via Qualtrics Panels.

Measures.

Demographic and Military History Questionnaire. Participants were asked to provide general demographic information, information about sexual orientation, and information about their military service. The current study focused on sexual minorities and primarily used the term sexual minorities and the acronym LGB+. However, this study took into account behavior as well as identity, as focusing on identity alone may have excluded individuals who identity as heterosexual but engage in same-sex sexual behaviors associated with increased risk and health care concerns (Institute of Medicine, 2011). The full list of survey items is found at the end of this document (See Appendix A)**.**

Minority Stress Measures - Distal Stressors

Discrimination. Discrimination was assessed by nine items, five of which were used in a Lambda Legal survey that assessed experiences with discrimination in health care settings and four of which comprise the Workplace and School Discrimination subscale from the Heterosexist Harassment, Rejection, and Discrimination Scale (HHRDS). Scores of the nine items were

averaged to create one discrimination score. The five items from Lambda Legal included being refused needed care, health care professionals refusing to touch them or using excessive precautions, health care professionals using harsh or abusive language, being blamed for their health status, or health care professionals being physically rough or abusive (Lambda Legal, 2010). The response options for each item in the Lambda Legal report were reported as dichotomous. This study used a rating scale with response options that ranged from 0 (never) or 3 (three or more times) in order to better understand the frequency of these events. The response options were chosen to be consistent with other measures used in this study and were treated as continuous variables for analysis purposes. This measure was chosen because it directly assesses experiences with discrimination in a health care setting and has been used to assess discrimination experiences among LGBTQ individuals. Since this measure has been adapted from a Lambda Legal survey, the measure has not undergone psychometric evaluation. Internal consistency in the current sample was .91.

The four items from the Workplace and School Discrimination subscale from the HHRDS evaluates unfair treatment by work supervisors, teachers, and peers and denial of career advancement due to sexual orientation (Szymanski, 2006a) The response options for the Workplace and School Discrimination subscale ranged from 1 (never) to 6 (almost all of the time, more than 70% of the time). This measure was chosen because it addresses specific experiences that would be applicable for these participants and could assess discrimination that they faced during their time in the military. The measure is typically used to assess experiences within the past year, but for this study it focused specifically on experiences during an individual's time in the military. The reported Cronbach's alpha was .84, but internal consistency in the current sample was .93. Item total correlations ranged from .56 to .73 (Szymanski, 2006).

This subscale is part of the larger HHRDS that has a reported an alpha of .90 for the full scale. Structural validity of the original scale was supported by exploratory factor analysis. Construct validity of the original full scale was supported by positive correlations between the scale and measures of psychological distress including somatization, obsessive compulsiveness, interpersonal sensitivity, depression, and anxiety (Szymanski, 2006). The Cronbach's alpha for the combined discrimination variable was .92.

Harassment. Harassment was assessed with the Harassment and Rejection subscale from the HHRDS which assesses harassment and rejection by family and friends with seven rating scale items. The scale ranges from 1 (the event has never happened to you) to 6 (the event happened almost all the time; more than 70% of the time) (Szymanski, 2006). Scores were averaged to compose a harassment score in which higher scores indicated more experiences of heterosexist harassment, rejection, and discrimination. The measure focuses on the past year, but in this study asked about harassment and rejection experiences during their time in military service. Sample items include "How many times have you been verbally insulted because of you are a lesbian/gay/bisexual person?" and "How many times have you been made fun of, picked on, pushed, shoved, hit, or threatened because you are a lesbian/gay/bisexual person?" The reported Cronbach's alpha was .89 and item total correlations ranged from .64 to .77 (Szymanski, 2006). In the current sample Cronbach's alpha was .93. The measure was chosen based on its ability to measure harassment and rejection in sexual minority individuals and frequent use in the literature.

***Victimization*.** Victimization was assessed using a six-question measure that addresses lifetime experiences with victimization events due to being LGB+. More specifically, the items focus on verbal and physical victimization experiences. The measure was adapted by Lehavot

and Simoni (2011) from D'Augelli (2001) with an additional item about being chased, followed, or stalked. The measure was modified to ask whether specific experiences happened during their time in the military. The response options for each item range from 0 (never) or 3 (three or more times). Scores were totaled to compose a harassment score in which higher scores indicated more experiences of victimization. Sample items included "During your time in the military, how often did you experience verbal harassment because you are lesbian/bisexual/gay?" and "During your time in the military, how often have you experienced being raped or sexually assaulted because you are lesbian/bisexual/gay?" The reported Cronbach's alpha in a study with sexual minority women was .78 (Lehavot & Simoni, 2011). This measure was separated into two measures of violent and nonviolent victimization. Violent victimization included two questions assessing experiences with being physically and sexually assaulted or raped. The other three items assessed experiences with verbal harassment, having objects thrown at them, and stalking. This measure was chosen because it has been used in the literature to measure victimization in the minority stress model with sexual minority individuals (Lehavot & Simoni, 2011). Since the adapted measure was used primarily as a part of another study, it has not undergone extensive psychometric evaluation.

Minority Stress Measures - Proximal Stressors

Internalized heterosexism. Internalized heterosexism was assessed using the five-item Internalized Homophobia Scale Revised (IHP-R) which assesses negative attitudes about sexual orientation directed towards the self (Herek, Gillis, & Cogan, 2009). This shorter, revised version of the Internalized Homophobia Scale (IHP) is more suitable to populations that include lesbians and bisexual individuals (Herek et al., 2009). Participants rated each item on a five-point Likert scale that ranged from 1 (disagree strongly) to 5 (agree strongly). Scores were averaged to

compose an internalized heterosexism score in which higher scores indicated more internalized heterosexism. Wording in the measure was gender specific and was changed based on the participant's gender. For example, the LB women's version of the questions read "I have tried to stop being attracted to women in general." The version for GB men reads, "I have tried to stop being attracted to men in general." Another item for LB women reads "I wish I weren't lesbian/bisexual." The version for GB men reads "I wish I weren't gay/bisexual." For women the terms lesbian and women were used and for men the terms gay and men were used where appropriate in order to center on same-sex attraction. Both the men and women's versions of the scale have been validated, with a Cronbach's alpha of .82 and a test-retest reliability of .67 (Herek et al., 2009). In the current sample, Cronbach's alpha was .75.

Concealment. Concealment was assessed using the Sexual Orientation Concealment Scale (SOCS), a six-item measure with items assessed using a rating scale that ranges from 1 (not at all) to 5 (all the time). The SOCS assesses effortful concealment behavior including counterfeiting, or purposely attempting to "pass" as heterosexual, and disclosure avoidance strategies in one's current life (Jackson & Mohr, 2016). Scores were averaged to compose a concealment score in which higher scores indicated more concealment behaviors. Sample items include "In the last two weeks, I have concealed my sexual orientation by telling someone that I was straight or denying that I was LGB." and "In the last two weeks, I have allowed others to assume I am straight without correcting them." The SOCS was strongly associated with measures of concealment motivation, a general concealment measure and a nondisclosure scale (Jackson & Mohr, 2016). Cronbach's alpha was .79 in a sample of 353 (Jackson & Mohr, 2016) Respondents were asked about their concealment behaviors during their time in the military. In the current sample, Cronbach's alpha was .89.

Anticipated stigma. Anticipated stigma was assessed using the Stigma Consciousness Questionnaire for gay men and lesbians (SCQ), a 10-item Likert scale that ranges from 1 (strongly disagree) to 7 (strongly agree) and measures the extent to which individuals expect to be stereotyped or discriminated against by others (Pinel, 1999). Scores were averaged to compose an anticipated stigma score in which higher scores indicate higher levels of anticipated stigma. Stigma consciousness allows for measurement of stigma and stereotypes even if the individual does not identify with the stereotypes of the group. This is divergent from internalized heterosexism where a person internalizes negative attitudes about sexual orientation. The wording was altered to include bisexual individuals. Sample items include "My being lesbian/gay/bisexual does not influence how lesbian/gay/bisexual individuals act with me" and "Most heterosexuals have a problem viewing lesbian/gay/bisexual individuals as equals." The reported Cronbach's alpha was .81 and a single factor accounted for 74% of the variance among the 10 items (Pinel, 1999). In the current sample Cronbach's alpha was .71.

Minority Stress Measures – Resilience Factors

Collective Self-Esteem. Resilience was assessed using the adapted nine-item Collective Self-Esteem measure which assesses a participant's feelings about being part of the LGB+ community and the extent to which their membership in the community is important to their identity (Herek et al., 1995). The wording was altered to include bisexual and lesbian individuals. Sample items include "I'm glad I belong to the lesbian/gay/bisexual community" and "I make a positive contribution to the lesbian/gay/bisexual community." The five-point Likert items range from 1 (strongly disagree) to 5 (strongly agree). Scores were averaged to compose a resilience score in which higher scores indicate more resilience. Reported Cronbach's alpha was .86 in a sample of gay men (Herek et al., 1995). While the CSE does not explicitly target all of

the items that were described in the original minority stress model, it addresses pride, self-identity, and community engagement, and serves as an appropriate, brief measure to inform whether resilience affects health care utilization. In the current sample. Cronbach's alpha was .71.

Minority Stress Measures – Healthcare utilization. Healthcare utilization was assessed using a primary health care utilization score that assesses whether participants have disclosed their sexual orientation or same-sex sexual behavior to their health care provider, whether they have health insurance, and whether they are up to date on age- and anatomy- appropriate vaccinations and screenings that typically take place in primary care settings (Whitehead et al., 2016). Like the Whitehead and colleagues' study (2016), screening and vaccinations were compiled from the U.S. Preventive Services Task Force & Centers for Disease Control guidelines for the general population as well as targeted screenings and vaccinations based on participant age, and sexual orientation. A single outcome variable of "healthcare utilization score" was created to denote the percentage of health tasks that each participant completed within the time period specified in the recommendations and guidelines (Whitehead et al., 2016).

Demographics and health conditions. Age was assessed with one item that included a dropdown menu of choices for ages 18-99. There was an item assessing current gender identity (woman, man). Sexual identity was assessed with the following item "There are many ways that individuals think of their sexual identity. Choose all that describe you." The answer choices were heterosexual, lesbian, bisexual, queer, asexual, pansexual, questioning, gay, not sure, and choose to self-identify with encouragement to fill-in the blank. If individuals chose pansexual or bisexual as well as another label they were classified as bisexual/pansexual. Race was assessed with the following item "Please tell us which below best fits you. Please select all that apply."

Due to a low number of individuals in certain categories, categories were collapsed into the following: European American/White, African American/Black, American Indian/ Alaskan Native/ Pacific Islander (included American Indian or Alaska Native, Native Hawaiian, Samoan, Guamanian or Chamorro, and Other Pacific Islander), Asian American (included Asian Indian, Japanese, Chinese, Korean, Filipino, Vietnamese, and Other Asian), and Other race. Hispanic/Latino/a ethnicity was assessed with one item, "Are you of Hispanic, Latino, or Spanish origin?" Answers for this item were dichotomized into Hispanic/Latino/a ethnicity and not Hispanic/Latino/a ethnicity. Chronic health conditions were assessed with one item "Have you been diagnosed with any of the following health conditions? Check all that apply." The following conditions were listed as chronic physical health conditions: high blood pressure/hypertension, overweight/obesity, history of concussion or loss of consciousness, HIV/AIDS, compromised immune system/immunodeficiency, any chronic condition or disease, and other. The following conditions were listed as chronic mental health conditions: anxiety, depression, PTSD, sleep disorder, substance use disorder or addiction, and eating disorder.

Procedures

After receiving the link to the survey, participants were directed to a Qualtrics survey. It began with an informed consent document, followed by the demographic, sexual orientation, and military history questionnaire and minority stress measures.

In order to ensure the validity of responses there were a variety of validity checks in place. Participants were removed for speeding through the survey defined as less than half of the median time to complete the survey (6.25 minutes). There were content related validity questions as well. For example, regarding military status, there were two veteran status questions that were as follows: "What is the acronym for the locations where final physicals are taken prior to

shipping off for basic training?" and "What is the acronym for the generic term the military uses for various job fields?" There was one possible answer for the first question and two possible answers for the second question that were accepted. These specific questions were previously developed to ensure that veteran populations are taking surveys on online platforms like MTurk and Qualtrics (Lynn & Morgan, 2016). To the author's knowledge there has not been any evidence of decline in utility of these questions since the publication of these items. Additionally, there was a third question to ensure that a person served after the repeal of DADT: "What was the last year in which you served in the military?" Participants who served before the repeal of DADT were removed. Further, participants were removed for reporting inconsistent information (e.g., reporting their age as 30 years old but reporting 35 years in service, selecting all branch options, reporting rank as E-9 with 3 years in service, etc.). Participants were also removed if they did not serve in the military, were not cisgender, and if they identified solely as heterosexual. If participants were found to fail at least two validity checks, they were removed from the survey. Additionally, listwise deletion was used if participants did not complete the minority stress and resilience measures. All minority stress measures were forced response such that participants could not advance through the survey without completing the items. At the completion of the survey, participants were provided a debriefing form (See Appendix B) with a list of national mental health resources. Finally, participants were compensated by Qualtrics for participating as part of a Qualtrics Panel according to their pre-set policies. Respondents received an incentive based on the length of the survey, their specific panelist profile, acquisition difficulty, and other factors. There was not necessarily a way to approximate the monetary value for how respondents were compensated as many respondents were compensated in different

manners and in different amounts. Compensation could have included cash, airline miles, gift cards, redeemable points, charitable donations, sweepstakes entrances, and vouchers.

CHAPTER 3: RESULTS

Demographics and Military Characteristics

A total of 3,568 participants initiated the survey. There were 108 participants removed for speeding through the survey. A total of 3,260 participants were deemed invalid or unqualified for the survey. This resulted in a total of 200 valid participants. Participant demographics are summarized in Table 1. A requirement to participate was to be cisgender. Over half of the participants were women (57.5%). Regarding sexual orientation identity, the largest proportion of participants identified as bisexual/pansexual (61.0%), with 17.5% identifying as lesbian, and 15.0% identifying as gay. The majority of participants had completed at least some college (82.0%). A total of 25.0% of the sample had earned a 4-year degree and 22.0% had some graduate education. About one quarter (25.5%) of participants identified as Latinx. With regard to race, participants were majority White/European American (68.5%), followed by African American/Black (17.0%), with the remaining 14.5% composed of individuals who identified as American Indian/ Alaskan Native/ Pacific Islander, Asian American, or other.

The majority of the participants had at least one chronic health condition. More than half of participants (52.0%) endorsed a chronic physical health condition while 69.5% endorsed a mental health condition. Physical health conditions included hypertension, overweight/obesity, history of concussion or loss of consciousness, HIV or AIDS, or compromised immune system/immunodeficiency. Mental health conditions included anxiety, depression, PTSD, sleep disorder, and substance use concerns. Physical and mental health conditions endorsed by participants are summarized in Table 2.

Table 1

Participant Demographics

Demographics	%	*n*
Age		
18-24	17.5%	35
25-34	47.0%	94
35-44	25.5%	51
45-54	8.0%	16
55+	2.0%	4
Gender		
Man	42.5%	85
Woman	57.5%	115
Sexual orientation		
Bisexual/Pansexual	61.0%	122
Lesbian	17.5%	35
Gay	15.0%	30
Asexual	1.5%	3
Questioning	2.5%	5
Queer	2.5%	5
Education		
High school or GED	13.0%	26
Tech or trade school certificate	5.0%	10
Some college or Associate's degree	35.0%	70
4-year college graduate	25.0%	50
Some graduate school/Master's degree	19.5%	39
Doctoral or professional degree	2.5%	5
Estimated Household Income		
Under $25,000	12.0%	24
$25,000-$49,999	20.0%	40
$50,000-$74,999	26.0%	52
$75,000-$99,999	14.5%	29
$100,000 and over	27.5%	55
Ethnicity		
Not Hispanic/Latino/a	74.5%	149
Latino/a	25.5%	51
Race		
European American/White	68.5%	137
African American/Black	17.0%	17
American Indian/ Alaskan Native/ Pacific Islander	4.5%	9
Asian American	5.5%	11
Other	4.5%	9
Location of PCP		
VAMC/VA-Affiliated Medical Center	49.0%	98
Civilian Medical Facility	30.0%	60

Other	2.0%	4
Missing	19.0%	38
Chronic Health Condition		
Physical Health Conditions	52.0%	104
Mental Health Conditions	69.5%	139

Note. Other Location of PCP: Military Treatment Facility (2), CU Health (1), Private facility (1).

Table 2

Summary of Chronic Health Conditions

Condition	%	*n*
Physical Health		
High blood pressure/Hypertension	15.0%	30
Overweight/Obesity	11.5%	23
History of concussion or loss of consciousness	6.5%	13
HIV or AIDS	3.0%	6
Compromised immune system/immunodeficiency	4.0%	8
Any chronic condition or disease	15.5%	31
Other	3.0%	6
Mental Health		
Anxiety	52.5%	105
Depression	42.0%	84
PTSD	33.0%	66
Sleep Disorder	27.5%	55
Substance Use Disorder or Addiction	8.0%	16
Eating Disorder	0.5%	1

Note. Other physical health condition: Anemia (1), Cervical cancer (1), Hepatitis C (1), Hypothyroidism (1), interstitial cystitis due to sexual trauma (1), Missing joint (1).

The sample was primarily composed of soldiers (54.0%), followed by airmen (17.0%), sailors (14.5%), Marines (12.0%), and coast guardsmen (2.5%). The majority of the sample had served in an active duty component (69.0%), with 19.5% serving as Reservists and 11.5% in the National Guard. The sample was majority enlisted (80.5%) and 10.5% were officers while 9.0% were warrant officers. Most of the sample (75.5%) was separated or retired, while 24.5% were still in the military. The majority (77.5%) of the sample had been deployed, 57.5% had experienced multiple deployments, and 61.0% had experienced a deployment that qualified for

either combat or hazard pay. On average, participants were deployed 2.2 times. Over one-third (39.5%) of the sample experienced military sexual trauma and 45.5% had a service-connected injury. Military characteristics are summarized in Table 3.

Table 3

Military Characteristics

Military characteristics	%	*N*
Branch		
Army	54.0%	108
Air Force	17.0%	34
Navy	14.5%	29
Marines	12.0%	24
Coast Guard	2.5%	5
Component		
Active Duty	69.0%	138
National Guard	11.5%	23
Reserve	19.5%	39
Rank		
Enlisted	80.5%	161
Officer	10.5%	21
Warrant Officer	9.0%	18
Service History		
Currently Serving	24.5%	49
Separated or Retired	75.5%	151
Ever Deployed		
Yes	77.5%	155
No	19.5%	39
Prefer not to answer	3.0%	6
Combat/Hazardous Duty Deployment		
Yes	61.0%	122
No	39.0%	78
Number of Deployments		
1	20.0%	40
2	23.0%	46
3	12.0%	24
4	7.5%	15
5+	15.0%	30
Military Sexual Trauma Experience		
Yes	39.5%	77
No	59.5%	119
Prefer not to answer	2.0%	4
Service-Connected Injury		

Yes	45.5%	91
No	54.5%	109

Descriptive Statistics of Variables of Interest

All continuous variables, including discrimination, harassment, nonviolent victimization, violent victimization, internalized heterosexism, anticipated stigma, concealment, resilience, and healthcare utilization, were examined to assess variable distribution and issues related to skew and kurtosis (See Table 4). For healthcare utilization, skew and kurtosis were acceptable suggesting no data transformation was needed (See Table 4). A correlation table for continuous variables can be found in Table 5.

The distal stressors in this study included variables measuring discrimination, harassment, nonviolent victimization, and violent victimization. For the discrimination variable, the mean was 1.28 which reflected that discrimination due to sexual identity was fairly infrequent for most participants. However participant scores ranged from 0.44 which was the lowest possible score to 4.22 out of a possible 4.33. This variable was composed of two sub scores, one focusing on discrimination in healthcare settings (*M* = 0.53*)*, and one centering around discrimination in school and workplace settings (*M* = 2.21*)*. These sub scores suggest that on average discrimination in healthcare settings while in the military took place between never and once while discrimination experiences in the work or school setting during a participant's time in the military took place between once in a while and sometimes. The range in participant responses in these sub scores covered the full range of possible scores.

The mean of the harassment variable was 2.5 which fell between the once in a while (less than 10% of the time) and sometimes (10-25% of the time) ratings, however these scores ranged from one to six, covering the full range of possible scores. The mean signified that on average

participants had been harassed due to their sexual orientation at least once during their time in the military, with the average being between 1-25% of the time. For the victimization variables, during time in service, participants on average experienced nonviolent victimization about twice (M = 2.24), and violent victimization about once (M = 1.06). These scores were summed for each participant and scores ranged from 0 on both measures, which meant a participant did not experience any victimization during their time in military services, to the maximum score on both measures which meant that a participant experienced each type of victimization three or more times. Overall, scores ranged across all possible scores for all distal stressors, but the averages fell within the low to moderate range.

The proximal stressors assessed in this study were internalized heterosexism, anticipated stigma, sexual identity, and concealment. Participants reported that during their time in service they generally disagreed with statements endorsing internalized heterosexism (M = 2.17) and scores ranged from one to five, covering the full range of possible scores. Participants reported concealing their LGB+ identity very much (M = 2.83) during their time in service, and the range of concealment scores also ranged from the lowest to highest possible scores on this measure. Regarding anticipated stigma, participants were neutral in the extent to which they expected to be stereotyped or discriminated against by others (M = 3.97). For this measure, scores ranged from 1.6 to 7, meaning that no participant strongly disagreed that they expected to be stereotyped or discriminated against by others in every context presented in the survey. Proximal stressors also included a wide range of scores, but the average for these scores were more in the moderate range compared to the low to moderate range scores with distal stressors.

The resilience variable which assessed a participant's feelings about being part of the LGB+ community and the extent to which their membership in the community is important to

their identity had a range of 1-4.89 out of a possible range of 1-5. On average participants slightly agreed that during their time in the military their membership in the LGB+ community was important to their identity (M = 3.65).

Lastly, as far as healthcare utilization, on average, participants received 62.0% of recommended preventative health measures including screenings and recommendations. There was variability in these scores, as the scores ranged from 0, meaning participants were not receiving any of the recommended preventative health measures to 1, meaning participants were receiving all recommended preventative health measures. The 25th, 50th, and 75th percentiles were .47, .67, and .80, respectively.

Table 4

Descriptive Statistics of Continuous Variables of Interest

Variable	*M*	*SD*	Min	Max	α	Skew	Kurtosis
Discrimination	1.28	0.92	0.44	4.22	.92	1.11	0.17
Harassment	2.56	1.35	1.00	6.00	.93	0.74	-0.41
Nonviolent Victimization	2.24	2.53	0.00	9.00	.76	1.03	0.14
Violent Victimization	1.06	1.66	0.00	6.00	.79	1.47	1.02
Internalized Heterosexism	2.17	1.09	1.00	5.00	.75	0.68	-0.55
Concealment	2.83	1.14	1.00	5.00	.89	0.01	-1.09
Anticipated Stigma	3.97	1.04	1.60	7.00	.71	0.24	-0.15
Resilience	3.65	0.76	1.00	4.89	.71	-0.40	-0.20
Healthcare Utilization	.62	.23	.00	1.00		-.75	.09

Note. N= 200

Correlation analyses were conducted among distal stressors, proximal stressors, resilience, covariates, and healthcare utilization. Results of the correlation analyses can be found in the correlation matrix presented in Table 5. All variables were significantly correlated with at least one other variable. The relations among all distal stressors and among all proximal

stressors were significant. There were moderate to strong positive relations among all of the distal stressors with other distal stressors. Though there were multiple correlated stressors, the multicollinearity assumption was met. The relations among the proximal stressors with other proximal stressors was positive but ranged from very weak to weak. The relations between distal and proximal stressors ranged from very weak to weak. The relations among stressors, resilience, and healthcare utilization were less consistent.

Table 5

Correlations Between Minority Stress and Resilience Variables and Healthcare Utilization

	1.	2.	3.	4.	5.	6.	7.	8.
1. Discrimination	—							
2. Harassment	0.84*	—						
3. Nonviolent Victimization	0.74*	0.63*	—					
4. Violent Victimization	0.74*	0.63*	0.78*	—				
5. Internalized Heterosexism	0.41*	0.33*	0.36*	0.37*	—			
6. Concealment	0.27*	0.34*	0.31*	0.19*	0.15*	—		
7. Anticipated Stigma	0.32*	0.25*	0.30*	0.25*	0.42*	0.32*	—	
8. Resilience	0.03	0.12*	0.06	0.00	-0.46*	0.01	-0.20*	—
9. Healthcare Utilization	0.05	0.05	0.16*	0.06	-0.08	0.06	-0.09	0.25*

*p<.05

Table 6

Comparison of Healthcare Utilization Scores Among Categorical Covariates

	N	Healthcare Utilization Score *M (SD)*	*t*	*p*
Sexual Orientation			2.28	.024
Bisexual/Pansexual	122	0.65 (0.20)		
Lesbian, Gay, Questioning, Asexual	78	0.57 (0.27)		
Physical Health Condition			2.13	.034
Endorsed	104	0.65 (0.22)		
Did Not Endorse	96	0.58 (0.24)		
Mental Health Condition			5.27	<.001
Endorsed	139	0.67 (0.20)		
Did Not Endorse	61	0.50 (0.25)		
Gender			1.81	.072
Women	115	0.65 (0.20)		
Men	85	0.59 (0.27)		
Race			2.16	.032
White/European American	137	0.60 (0.24)		
Racial minority	63	0.67 (0.20)		
Ethnicity			1.42	.137
Not Hispanic/Latino/a	149	0.61 (0.22)		
Hispanic/Latino/a	51	0.66 (0.26)		
Military Branch			1.58	.116
Army	108	0.69 (0.25)		
Navy, Marines, Air Force, or Coast Guard	98	0.65 (0.20)		

The means of healthcare utilization stratified by demographic characteristics including sexual orientation, physical and mental health conditions, gender, race, ethnicity, and military branch are summarized in Table 6. Military branch was dichotomized as Army and other branch

to include Navy, Marines, Air Force or Coast Guard. Sexual orientation, physical health condition, mental health condition, and race all had significantly different means between each of the respective the dichotomized groups. The mean healthcare utilization score was significantly higher for bisexual/pansexual individuals, individuals who endorsed physical and mental health conditions, and people of color. The difference in the means for healthcare utilization were not significant for gender or military branch.

Hypotheses 1 and 2:

Hypotheses 1 and 2 posited that distal and proximal minority stressors, respectively, would predict healthcare utilization. In order to examine hypotheses 1 and 2, a four-step hierarchical multiple regression was conducted with healthcare utilization as the dependent variable. Age, gender, bisexual/pansexual sexual orientation (bisexual/pansexual or gay/lesbian/other), race (White/Racial minority), ethnicity (Latino/a not Latino/a), chronic physical health condition, and chronic mental health conditions were the covariates that were entered at step one. The distal stressor variables: discrimination, harassment, violent and nonviolent victimization variables were entered at step two. The proximal stressor variables: internalized heterosexism, anticipated stigma, and concealment were entered into step three. The resilience variable was entered in step four. The regression statistics are presented in Table 6.

The hierarchical multiple regression revealed that at step one, age, gender, bisexual/pansexual sexual orientation, race, ethnicity, chronic physical health condition, and chronic mental health conditions contributed significantly to the regression model, F (7, 192) = 6.98, $p < .001$,and accounted for 20.3% of the variance in healthcare utilization. Introducing the distal stressor variables explained an additional 1.9% of variation in healthcare utilization and this change in R^2 was not significant, ΔF (4, 188) = 1.12, $p = .35$. Adding proximal stressors to

the regression model explained an additional 2.3% of the variation in healthcare utilization and this change in R^2 was not significant, ΔF (3, 185) = 1.87, p = .14. Finally, the addition of resilience factors to the regression model explained an additional 2.7% of the variation in healthcare utilization and this change in R^2 square was significant, ΔF (1, 184) = 6.89, p = .009. When all seven independent variables were included in step four of the regression model, bisexual/pansexual sexual orientation, chronic physical health condition, chronic mental health condition, and resilience were significant predictors of healthcare utilization. Together the variables accounted for 27.2% of the variance in healthcare utilization.

Table 7

Summary of the Hierarchical Regression Analysis for Variables predicting Healthcare Utilization

Variable	β	*t*	sr^2_{xy}	R^2	ΔR^2
Step 1				.20	.20***
Age	.08	1.25	.01		
Bisexual/Pansexual Identity	.10	1.45	.01		
Chronic Physical Health Condition	.17	2.82*	.03		
Chronic Mental Health Condition	.35	5.23*	.11		
Gender	.07	0.99	.00		
Race	-.09	-1.39	.01		
Ethnicity	-.11	-1.70	.01		
Step 2				.22	.02
Discrimination	-.10	-0.71	0.00		
Harassment	-.05	-0.44	0.00		
Nonviolent Victimization	.21	1.85	0.01		
Violent Victimization	-.09	-0.75	0.00		
Step 3				.24	.02
Internalized Heterosexism	-.09	-1.08	0.00		
Anticipated Stigma	-.02	-0.23	0.00		
Concealment	-.12	-1.55	0.01		
Step 4				.27	.03*
Resilience	.20	2.62*	0.03		

Note: N=200; *p < .05

Hypothesis 3:

Hypothesis 3 examined whether resilience functioned as a moderator of healthcare utilization. The interaction terms of resilience and each of the seven minority stressors were examined using moderation analyses using model 1 of the PROCESS macro in SPSS (Hayes, 2017). None of the interaction terms with the seven minority stress variables were significant. The slopes, standard errors, and *p*-values can be found in Tables 7-14.

Hypothesis 4:

Hypothesis 4 examined whether gender functioned as a moderator of healthcare utilization. The interaction terms of gender and each of the seven minority stressors were examined using moderation analyses using model 1 of the PROCESS macro in SPSS (Hayes, 2017). There were significant interactions between gender and two of the proximal stressors: internalized heterosexism and anticipated stigma. The interaction term of internalized heterosexism and gender was significant, $\Delta R^2 = .03$, $F(1, 183) = 8.08$, $p = .005$. The slopes, standard errors, and *p*-values can be found in Table 11. The interaction term of anticipated stigma and gender is significant, $\Delta R^2 = .02$, $F(1, 183) = 4.72$, $p = .031$. The slopes, standard errors, and *p*-values can be found in Table 12.

Table 8

Interactions of Gender and Discrimination and Resilience and Discrimination on Healthcare Utilization

	Model 1			Model 2		
Variables	***B***	***SE***	***p***	***B***	***SE***	***p***
Constant	0.23	0.14	.096	0.33	0.17	.045
Discrimination	0.02	0.04	.586	-0.05	0.09	.554
Harassment	0.03	0.02	.230	-0.02	0.02	.347
Non-Violent Victimization	0.02	0.01	.039	0.02	0.01	0.06
Violent Victimization	-0.01	0.02	.367	-0.01	0.02	.423

Internalized Heterosexism	0.00	.02	.958	0.00	0.02	.796
Anticipated Stigma	0.01	0.02	.765	0.00	0.02	.783
Concealment	-0.02	0.02	.166	-0.02	0.02	.182
Resilience	0.06	0.02	.012	0.05	0.03	.172
Age	0.00	0.00	.315	0.00	0.00	.325
Sexual Orientation	0.06	0.03	.041	0.06	0.03	.051
Race	-0.03	0.03	.422	-0.03	0.03	.356
Ethnicity	-0.05	0.04	.168	-0.05	0.04	.154
Gender	0.07	0.05	.174	0.01	0.03	.692
Physical Chronic Health Condition	0.10	0.03	.003	0.10	0.03	.004
Mental Chronic Health Condition	0.17	0.03	<.001	0.16	0.04	<.001
Discrimination x Gender	-0.05	0.04	.230	-	-	-
Discrimination x Resilience	-	-	-	0.01	0.02	.578

Note. Model 1 – Interaction of gender and discrimination on healthcare utilization; Model 2 – Interaction of resilience and discrimination on healthcare utilization

Table 9

Interactions of Gender and Harassment and Resilience and Harassment on Healthcare Utilization

	Model 1			**Model 2**		
Variables	***B***	***SE***	***p***	***B***	***SE***	***p***
Constant	0.22	0.14	.129	0.21	0.19	.274
Discrimination	-0.02	0.04	.685	-0.01	0.04	.799
Harassment	0.00	0.02	.882	0.01	0.07	.859
Non-Violent Victimization	0.02	0.01	.043	0.02	0.01	0.06
Violent Victimization	-0.01	0.02	.430	-0.01	0.02	.488
Internalized Heterosexism	0.00	.02	.951	0.00	0.02	.925
Anticipated Stigma	0.01	0.02	.737	0.00	0.02	.996
Concealment	-0.02	0.02	.160	-0.02	0.02	.130
Resilience	0.06	0.02	.011	0.08	0.04	.065
Age	0.00	0.00	.351	0.00	0.00	.355
Sexual Orientation	0.06	0.03	.049	0.07	0.03	.038
Race	-0.03	0.03	.425	-0.03	0.03	.430
Ethnicity	-0.05	0.04	.155	-0.05	0.04	.156
Gender	0.09	0.07	.186	0.01	0.03	.783
Physical Chronic Health Condition	0.10	0.03	.002	0.10	0.03	.004

Mental Chronic Health Condition	0.17	0.04	<.001	0.17	0.04	<.001
Harassment x Gender	-0.03	0.02	.184	-	-	-
Harassment x Resilience	-	-		-0.01	0.02	.607

Note. Model 1 – Interaction of gender and harassment on healthcare utilization; Model 2 –

Interaction of resilience and harassment on healthcare utilization

Table 10

Interactions of Gender and Non-violent Victimization and Resilience and Non-violent Victimization on Healthcare Utilization

	Model 1			Model 2		
Variables	***B***	***SE***	***p***	***B***	***SE***	***p***
Constant	0.22	0.14	.120	0.22	0.15	.143
Discrimination	-0.01	0.04	.760	-0.01	0.04	.857
Harassment	-0.02	0.02	.284	-0.02	0.02	.301
Non-Violent Victimization	0.03	0.01	.011	0.05	0.03	.094
Violent Victimization	-0.01	0.02	.422	0.01	0.02	.515
Internalized Heterosexism	0.00	.02	.933	0.00	0.02	.992
Anticipated Stigma	0.01	0.02	.702	0.00	0.02	.920
Concealment	-0.02	0.02	.171	-0.02	0.02	.111
Resilience	0.06	0.02	.009	0.08	0.03	.006
Age	0.00	0.00	.285	0.00	0.00	.417
Sexual Orientation	0.07	0.03	.03	0.07	0.03	.030
Race	-0.02	0.03	.461	-0.03	0.03	.403
Ethnicity	-0.05	0.04	.136	-0.05	0.04	.149
Gender	0.06	0.04	.177	0.01	0.03	.845
Physical Chronic Health Condition	0.10	0.03	.003	0.10	0.03	.003
Mental Chronic Health Condition	0.16	0.04	<.001	0.16	0.04	<.001
Non-Violent Victimization x Gender	-0.02	0.01	.087	-	-	-
Non-Violent Victimization x Resilience	-	-		-0.01	0.01	.269

Note. Model 1 – Interaction of gender and non-violent victimization on healthcare utilization;

Model 2 – Interaction of resilience and non-violent victimization on healthcare utilization

Table 11

Interactions of Gender and Violent Victimization and Resilience and Violent Victimization on Healthcare Utilization

	Model 1			Model 2		
Variables	***B***	***SE***	***p***	***B***	***SE***	***p***
Constant	0.25	0.14	.068	0.26	0.14	.064
Discrimination	-0.01	0.04	.695	-0.01	0.04	.832
Harassment	-0.02	0.02	.305	-0.02	0.02	.342
Non-Violent Victimization	0.02	0.01	.030	0.02	0.01	.060
Violent Victimization	0.01	0.02	.781	0.01	0.05	.852
Internalized Heterosexism	0.00	.02	.967	0.00	0.02	.887
Anticipated Stigma	0.01	0.02	.750	0.00	0.02	.984
Concealment	-0.02	0.02	.186	-0.02	0.02	.134
Resilience	0.06	0.02	.012	0.07	0.03	.013
Age	0.00	0.00	.345	0.00	0.00	.370
Sexual Orientation	0.07	0.03	.029	0.07	0.03	.038
Race	-0.03	0.03	.384	-0.03	0.03	.390
Ethnicity	-0.05	0.04	.156	-0.05	0.04	.147
Gender	0.04	0.04	.240	0.01	0.03	.777
Physical Chronic Health Condition	0.09	0.03	.004	0.09	0.03	.004
Mental Chronic Health Condition	0.16	0.04	<.001	0.16	0.04	<.001
Violent Victimization x Gender	-0.03	0.02	.695	-	-	-
Violent Victimization x Resilience	-	-	-	-0.01	0.01	.657

Note. Model 1 – Interaction of gender and Violent Victimization on healthcare utilization; Model 2 – Interaction of resilience and Violent Victimization on healthcare utilization

Table 12

Interactions of Gender and Internalized Heterosexism and Resilience and Internalized Heterosexism on Healthcare Utilization

	Model 1			Model 2		
Variables	***B***	***SE***	***p***	***B***	***SE***	***p***
Constant	0.46	0.15	.002	0.18	0.12	.392
Discrimination	0.01	0.04	.875	0.00	0.04	.928
Harassment	-0.02	0.02	.404	-0.02	0.02	.308

Non-Violent Victimization	0.02	0.01	.115	0.02	0.01	.077
Violent Victimization	-0.01	0.02	.537	-0.01	0.02	.480
Internalized Heterosexism	-0.05	0.03	.072	0.04	0.07	.513
Anticipated Stigma	-0.01	0.02	.554	0.00	0.02	.946
Concealment	-0.02	0.02	.160	-0.02	0.02	.136
Resilience	0.05	0.02	.032	0.09	0.05	.069
Age	0.00	0.00	.322	0.00	0.00	.355
Sexual Orientation	0.06	0.03	.047	0.07	0.03	.038
Race	-0.03	0.03	.416	-0.03	0.03	.433
Ethnicity	-0.06	0.04	.109	-0.05	0.04	.159
Gender	-0.17	0.07	.019	0.01	0.03	.693
Physical Chronic Health Condition	0.09	0.03	.006	0.10	0.03	.003
Mental Chronic Health Condition	0.15	0.04	<.001	0.17	0.04	<.001
Internalized Heterosexism x Gender	-0.08	0.03	.005	-	-	-
Internalized Heterosexism x Resilience	-	-	-	-0.01	0.02	.531

Note. Model 1 – Interaction of gender and Internalized Heterosexism on healthcare utilization;

Model 2 – Interaction of resilience and Internalized Heterosexism on healthcare utilization

Table 13

Interactions of Gender and Anticipated Stigma and Resilience and Anticipated Stigma on Healthcare Utilization

	Model 1			**Model 2**		
Variables	***B***	***SE***	***p***	***B***	***SE***	***p***
Constant	0.50	0.17	.003	0.08	0.32	.797
Discrimination	0.00	0.04	.919	-0.01	0.04	.850
Harassment	-0.03	0.02	.181	-0.02	0.02	.366
Non-Violent Victimization	0.02	0.01	.112	0.02	0.01	.061
Violent Victimization	-0.01	0.02	.437	-0.01	0.02	.485
Internalized Heterosexism	0.00	.02	.885	0.00	0.02	.843
Anticipated Stigma	-0.05	0.03	.072	0.04	0.07	.532
Concealment	-0.03	0.02	.084	-0.02	0.02	.147
Resilience	0.06	0.02	.018	0.12	0.08	.163
Age	0.00	0.00	.310	0.00	0.00	.350
Sexual Orientation	0.06	0.03	.071	0.06	0.03	.042
Race	-0.02	0.03	.453	-0.03	0.03	.435
Ethnicity	-0.05	0.04	.121	-0.05	0.04	.164

Gender	-	-	-	0.01	0.03	.687
Physical Chronic Health Condition	0.09	0.03	.005	0.10	0.03	.003
Mental Chronic Health Condition	0.17	0.04	<.001	0.16	0.04	<.001
Anticipated Stigma x Gender	0.07	0.03	.031	-	-	-
Anticipated Stigma x Resilience	-	-	-	-0.01	0.02	.499

Note. Model 1 – Interaction of gender and Anticipated Stigma on healthcare utilization; Model 2 – Interaction of resilience and Anticipated Stigma on healthcare utilization

Table 14

Interactions of Gender and Concealment and Resilience and Concealment on Healthcare Utilization

	Model 1			**Model 2**		
Variables	***B***	***SE***	***p***	***B***	***SE***	***p***
Constant	0.41	0.16	.011	0.14	0.24	.570
Discrimination	-0.01	0.04	.834	0.00	0.04	.927
Harassment	-0.02	0.02	.400	-0.02	0.02	.295
Non-Violent Victimization	0.02	0.01	.069	0.02	0.01	.065
Violent Victimization	-0.01	0.02	.436	-0.01	0.02	.431
Internalized Heterosexism	0.00	0.02	.914	0.00	0.02	.879
Anticipated Stigma	-0.01	0.02	.616	0.00	0.02	.921
Concealment	-0.04	0.02	.038	0.02	0.07	.717
Resilience	0.05	0.02	.026	0.10	0.06	.091
Age	0.00	0.00	.389	0.00	0.00	.371
Sexual Orientation	0.06	0.03	.067	0.07	0.03	.038
Race	-0.03	0.03	.339	-0.03	0.03	.415
Ethnicity	-0.05	0.04	.155	-0.05	0.04	.155
Gender	-0.11	0.09	.211	0.02	0.03	.649
Physical Chronic Health Condition	0.10	0.03	.003	0.10	0.03	.003
Mental Chronic Health Condition	0.16	0.04	<.001	0.16	0.04	<.001
Concealment x Gender	-0.04	0.03	.136	-	-	-
Concealment x Resilience	-	-	-	-0.01	0.02	.477

Note. Model 1 – Interaction of gender and Concealment on healthcare utilization; Model 2 – Interaction of resilience and Concealment on healthcare utilization

Table 15

Interactions of Gender and Resilience on Healthcare Utilization

	Model 1		
Variables	***B***	***SE***	***p***
Constant	0.11	0.16	.478
Discrimination	-0.01	0.04	.740
Harassment	-0.02	0.02	.354
Non-Violent Victimization	0.02	0.01	.068
Violent Victimization	-0.01	0.02	.452
Internalized Heterosexism	0.01	0.02	.645
Anticipated Stigma	0.01	0.02	.974
Concealment	-0.02	0.02	.269
Resilience	0.11	0.03	.002
Age	0.00	0.00	.385
Sexual Orientation	0.06	0.03	.084
Race	-0.03	0.03	.412
Ethnicity	-0.05	0.04	.122
Gender	0.29	0.16	.064
Physical Chronic Health Condition	0.10	0.03	.003
Mental Chronic Health Condition	0.16	0.04	<.001
Resilience x Gender	-0.08	0.04	.068

Note. Model 1 – Interaction of gender and resilience on healthcare utilization

As shown in Tables 11 and 12, gender significantly moderated the relation between anticipated stigma and healthcare utilization and between internalized heterosexism and healthcare utilization. The interactions were probed by testing the conditional effects of each gender. When the focal predictors anticipated stigma and internalized heterosexism were examined for conditional effects for each gender, neither anticipated stigma nor internalized stigma was significant (See Table 15). The interaction was probed by testing the conditional effects of gender at three levels of internalized heterosexism, one standard deviation below the mean, at the mean, and one standard deviation above the mean. While the effects were not significant for either predictor, there was a pattern with both predictors such that as internalized heterosexism

and anticipated stigma increased, healthcare utilization decreased for men and increased for women (See Figures 3 and 4).

Table 16

Conditional Effects of Focal Predictors Internalized Heterosexism and Anticipated Stigma on Healthcare Utilization examined by Gender

Internalized Heterosexism	β	*SE*	*p*	95% CI		Anticipated Stigma	β	*p*	95% CI	
Men	-0.05	0.03	.072	-0.09	0.00	Men	-0.05	.072	-0.10	0.00
Women	0.04	0.02	.078	-0.00	0.08	Women	0.02	.227	-0.02	0.06

Figure 3.

Interaction Plot for Internalized Heterosexism Gender*

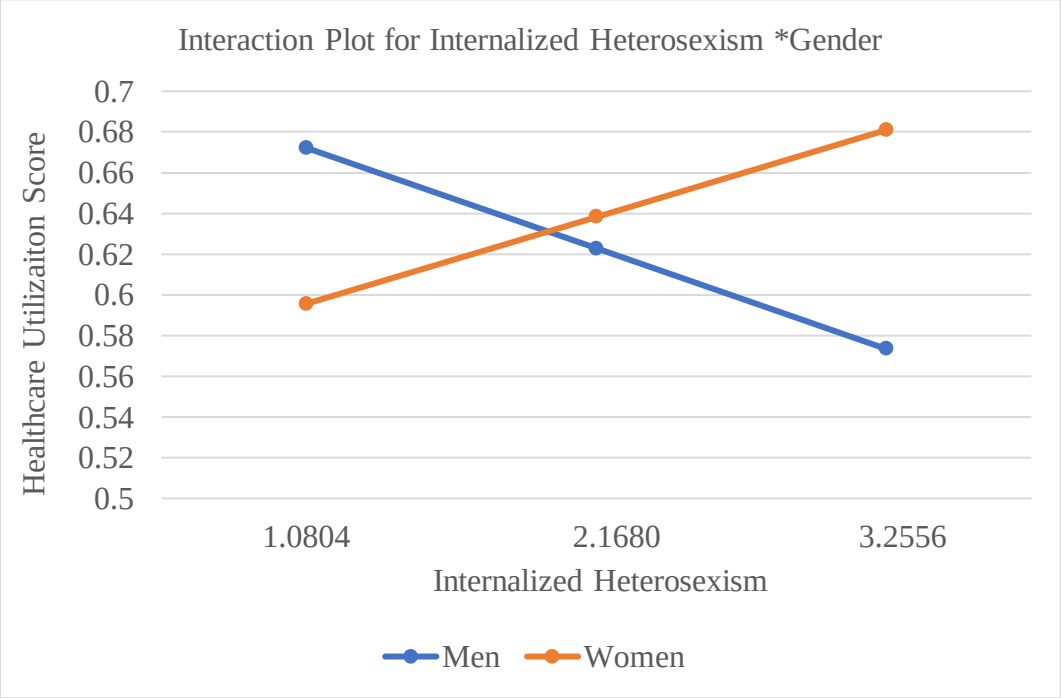
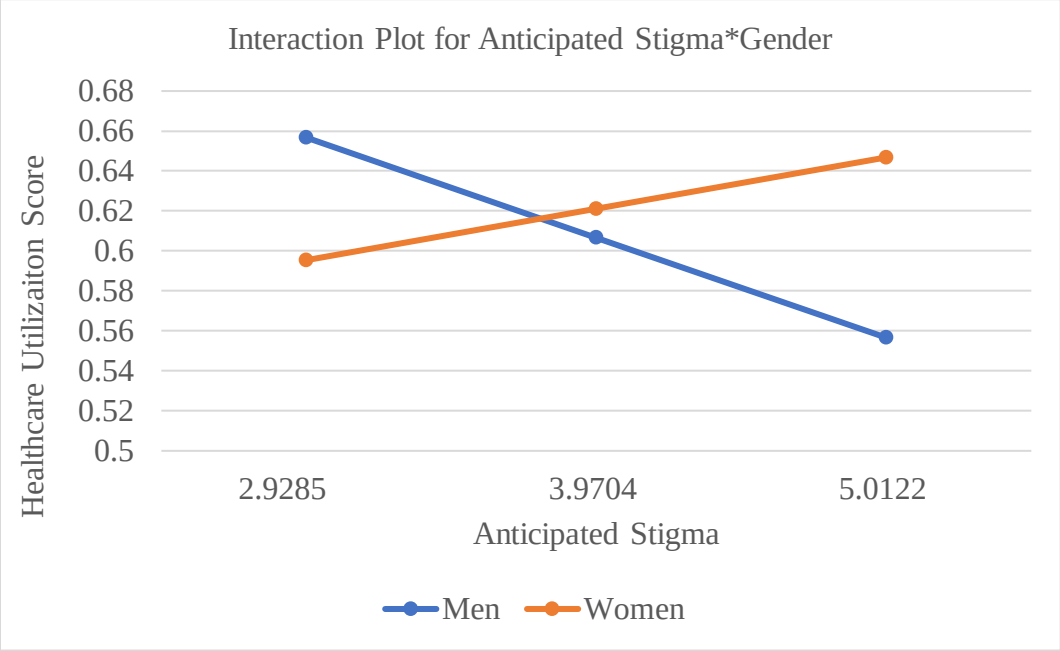


Figure 4.

*Interaction Plot for Anticipated Stigma*Gender*



Chapter 4: DISCUSSION

Participant Demographics and Health Conditions

This is the first study to the author's knowledge that examines the experiences of sexual minority individuals who have served in the military since the repeal of DADT. Of note, the sample in this study differs from the active duty and veteran populations in the United States in that there is a higher proportion of women, bisexual/pansexual individuals, younger service members/veterans, and the sample is primarily made up of individuals who serve/d in the Army. The gender composition of the sample is not consistent with the current active duty military and veteran populations. However, it is consistent with the composition of Qualtrics panel members (59% women compared to 41% men; Lynn & Morgan, 2016; Hilgemann. E, personal communication, October 28, 2020). The high proportion of bisexual and pansexual women in the sample seems to be fairly representative of shifting landscapes among the LGB+ community. In the past decade, there has been a steep increase in the number of adults identifying as bisexual/pansexual. Specifically, the number of 18-34-year-old women identifying as bisexual/pansexual has increased by 4% in the U.S. population while the percentage of women identifying as lesbian and the percentage of men identifying as bisexual or gay in this age group has largely remained the same (Compton et al., 2015; Compton & Bridges, 2019; Gates, 2017). This is likely due in part to the decrease in social stigma among younger adults associated with identifying as bisexual or pansexual, as the percentage of older adults who identify as LGB+ has remained stable and/or declined. Additionally, regardless of sexual orientation, older respondents often do not respond to self-identified sexual orientation measures that would have disqualified them from this study (Blosnich & Silenzio, 2013). This sample was also younger than the typical

veteran population, which was expected given that individuals must have served after the repeal of DADT to qualify.

Participants had primarily served in the Army with Coast guardsmen and Marines close to being a representative proportion of the sample, but Airmen and Sailors were under-represented. This is consistent with other online studies of military veterans as the Army tends to be consistently overrepresented, accounting for 50% or more of participants, although no explanation for this overrepresentation of Army participants in research has been offered (Lynn & Morgan, 2016; Pedersen, 2015). Taken together, these differences mean that the findings in this study may be more generalizable to the younger population of LGB+ service members and veterans that have served since the repeal of DADT. While the percentage of women seems to be representative of the Qualtrics survey pool, it seems consistent with the higher percentage of bisexual/pansexual women in younger samples of LGB+ individuals.

As the focus of this thesis was on predictors of healthcare utilization, it is important to first examine the healthcare needs of participants. In this study, 52% of participants endorsed having at least one physical health condition. The most prevalent chronic physical health condition was hypertension, which is consistent with cardiovascular risk in other samples of LGB+ adults with military experience (Blosnich, et al., 2015). However, only 11.5% of participants were overweight or obese, which is much lower than civilian LGB samples, and lower than other samples of LGB veterans as well (Kauth et al., 2014; Blosnich & Silenzio, 2013). Further, while 45.5% of participants had a service-connected injury, only 6.5% of the sample had a history of concussion or loss of consciousness which is noticeably lower than the rate of 15.2% to 22.8% of OEF/OIF/OND veterans (McKee & Robinson, 2014). It is possible that some of the differences in physical health condition are attributed to the younger age of

participants, as well as the fact that some participants were still serving in the military and so had to maintain physical fitness standards to serve. Additionally, participants who served only after the repeal of DADT likely were not serving during the height of troop deployment for OEF/OIF/OND and thus may have been less likely to have combat experiences leading to concussions (Department of Veterans Affairs, 2015a). Additionally, since there was a higher proportion of women and all combat roles were not open to women until 2016, women may have had less opportunity for head injury than participants who were men. Further, it is possible that there may be less engagement in survey research from service members and veterans with a history of head injury.

The mental health needs of participants were higher than anticipated with 69.5% of participants endorsing at least one mental health condition. Specifically, 52.5% of participants endorsed a history of anxiety and 42.0% a history of depression. This was higher than a past study by Blosnich and colleagues (2015) who found 46.7% of sexual minority individuals with military experience had a psychiatric diagnosis other than depression, and 37.8% had a depression diagnosis. The higher rates in the present study are likely driven by the percentage of women in the study as women are more likely to endorse histories of anxiety and depression than men. Specifically, in sexual minority populations, bisexual women have been noted as the group with the highest risk for anxiety and depression (Björkenstam et al., 2017).

There are several additional factors that may have contributed to the high prevalence of mental health conditions reported. For one, sexism endured by women in the military involves everything from being treated unfairly to MST. MST is fairly prevalent in the US military and had a high prevalence in our study. While we did not examine experiences of sexism specifically in this study, sexism is associated with negative mental health outcomes and may contribute to

some of the mental health concerns reported (Lehavot et al., 2019). An additional stressor that may be related to these outcomes is participants not fitting into the heteronormative gender roles of the military, particularly male participants. As the military is typically not only heteronormative, but hypermasculine, participants who do not fit both of these ideals may face additional stressors that contribute to the high prevalence of mental health conditions as well. Further, it is possible that participants' minority statuses other than sexual minority status contributes to risk for mental health conditions. While this study examined minority stress related to sexual identity, other minority statuses such as that associated with gender, race, and disability could be responsible for other elements of minority stress that contribute to mental health problems.

Also, of note, 33% of participants stated that they had been diagnosed with PTSD. This is higher than would be expected as the literature has noted a PTSD prevalence between 10 and 15% among veterans in general, with combat-exposed veterans experiencing PTSD at rates ranging from 20-25% with a similar prevalence of PTSD found among male and female veterans (Kauth et al., 2014). This elevated prevalence could be due to the frequency of combat experience among participants, as 61.0% had a deployment that had combat or hazard pay, as well as the frequency of MST, with 39.5% reporting a history of MST. Not surprisingly, both of these experiences are associated with a higher prevalence of PTSD among military members (Kauth et al., 2014; Wilson, 2018; Lehavot et al., 2012). Additionally, some of the higher rates of psychological distress in this study could be related to age, as Cortes and colleagues (2019) found that LGB veterans under 50 typically have higher scores on depression screens.

Minority Stress Model as a Predictor of Healthcare Utilization

Hypotheses 1 and 2 examined distal and proximal stressors as predictors of healthcare utilization. Neither hypotheses 1 or 2 were supported, as the addition of neither distal stressors, nor proximal stressors were significant to the overall regression model predicting healthcare utilization. In fact, in the model including covariates, distal stressors, proximal stressors, and resilience, only bisexual/pansexual sexual orientation, chronic physical and mental health condition, and resilience were significant predictors of preventative healthcare utilization.

Chronic physical and mental health condition variables included in the model as covariates can be interpreted as a representation of healthcare need. Overall healthcare need seemed to contribute to preventative healthcare utilization, suggesting that individuals were being appropriately screened and/or encouraged to get vaccinations while being seen for mental or physical health concerns, and in accordance with recommendations. This may be due to the fact that half of participants reported receiving care from the VHA, DoD, or another integrated health system. These integrated healthcare systems typically maintain records that providers in different areas of care are able to access which helps to support preventative care. For example, in the VHA there exists infrastructure and regulatory requirements of heath care personnel once a veteran is engaged in VHA care. When veterans are seen for any concern, physical or otherwise, their providers are prompted with a list of reminders, including preventative care items, that are to be completed during their visit to maintain a standard of care. Completion of clinical reminders factors into performance evaluations for individual providers as well as VHA medical centers as a whole (Ngo-Metzger, 2020). Individuals with chronic physical health conditions may have had increased contact with providers in integrated care settings. Thus, it makes sense that individuals with chronic physical health conditions had greater healthcare utilization.

Having a chronic mental health condition was the single variable that accounted for the most variance in the model predicting healthcare utilization. This was particularly interesting because the majority of the preventative health recommendations that comprised the healthcare utilization variable focused on physical health recommendations and vaccinations, with the exception of depression and interpersonal violence screenings. Of note, there was a positive relationship between mental health condition and healthcare utilization, such that as the number of reported mental health diagnoses increased, healthcare utilization increased as well. This may have been due to the large number of participants utilizing healthcare in integrated care settings that maintain a system with clinical reminders for preventative healthcare tasks.

Of note, having a bisexual/pansexual sexual orientation was associated with more healthcare utilization. There are a number of possible explanations for this finding. For one, bisexual/pansexual women were significantly more likely to have a service-connected injury than women who did not identify as bisexual/pansexual. Experiences within healthcare systems with service-connected injury could contribute to positive experiences and expectations regarding quality care which could increase healthcare utilization. For example, researchers have found that when veterans feel that they are deserving of care they are more likely to use VHA and other healthcare services (Di Leone et al., 2016; Fox et al., 2015). Further, given that veterans have previously connected feelings of deservingness to combat experiences, it is possible that combat-related service-connected injuries may be associated with feelings of healthcare deservingness as well (Di Leone et al., 2016; Fox et al., 2015). Another possible reason for increased healthcare utilization in a population that experiences multiple minority identities (i.e., gender and sexual minority identities) is the resilience hypothesis (Balsam, 2003; Lehavot et al., 2019). This hypothesis suggests that holding multiple minority identities can lead

to protective factors due to the effects of resilience. In past research, this has been examined with women who were veterans, sexual minorities, and racial/ethnic minorities. However, it is possible that bisexuality as its own marginalized group within the LGBTQ+ population may lead to similar resilience effects. Further, there were significant differences in resilience between bisexual/pansexual women in the study compared with those who did not identify as bisexual/pansexual, but not with bisexual men. The bisexual/pansexual orientation finding seems to be driven by the high proportion of women in the study and the additional minority statuses of being both bisexual and a woman. Thus, it is plausible that the unanticipated finding of the association of bisexual/pansexual orientation with healthcare utilization may be related to greater resilience in this subpopulation, as well as positive experiences and/or expectations based on beliefs about deservingness of care.

Turning to minority stress, there are several possible explanations for the lack of association of distal and proximal minority stress with preventative healthcare utilization. One prior study to the author's knowledge examined minority stressors as predicting preventative healthcare utilization in LGB+ populations and found that concealment was associated with lower levels of utilization of preventative healthcare for cisgender GB men (Whitehead et al., 2016). This study's results may have been inconsistent with this prior study due to the temporal nature of minority stressors (i.e., time in service) assessed in the current study. Since only one stressor was significant during any of the steps in the hierarchical multiple regression model, it seems that the experiences that these individuals had in service did not influence recent healthcare utilization. This may be due to participants' average amount of stressors falling in the low to moderate range with few participants endorsing a high amount of minority stress related to their LGB+ status during time in service. This could also be due to the temporal distance

between the stressors experienced and healthcare utilization. The survey did not examine when events occurred that were related to minority stress. Events related to minority stress that have happened since an individual left the military may be more clearly associated with lack of healthcare utilization than events that happened when an individual was in the military.

The context of minority stress likely influenced reported minority stress. It was hypothesized that minority stress related to healthcare settings would be more relevant to healthcare utilization, but it is possible that minority stress experiences outside of healthcare contexts are more impactful given the null results of the present study. It is also possible that LGB+ individuals with more recent military service histories are experiencing less of the heterosexism than was documented in the past, particularly when accessing care in the VHA system (Compton et al., 2015). On the contrary, social learning prior to time in service could have influenced participants' expectations for their healthcare experiences as well. If individuals had expectations of discrimination prior to joining the military, they may have concealed their sexual orientation and therefore had fewer experiences with distal stressors. Lastly, to the author's knowledge, the association of a number of forms of minority stress with preventative healthcare utilization has not been examined previously, including discrimination, harassment, victimization, and internalized heterosexism. Thus, it is possible that the minority stress model as a whole may be an inappropriate model to predict preventative healthcare utilization in LGB+ military populations.

Hypothesis three, which examined whether resilience functioned as a moderator, was not supported. However, there was a main effect for resilience, as higher levels of resilience predicted greater preventative healthcare utilization. In this sample, utilizing preventative healthcare served as a successful adaptation to minority stress, such that individuals who have

more community resilience are more likely to have received recommended screenings and vaccinations. Often, measures that assess resilience tend to focus on levels of individual mastery regarding positive adaptation to stress. The CSE used in this study, however, focuses on a community-oriented type of resilience that emphasizes how an individual's interaction with their social environment influences health. The community-oriented focus of the CSE is more aligned with Meyer's conceptualization of resilience in the minority stress model (Meyer, 2015). This measure, while more in line with Meyer's model, focuses on belonginess and contributions to the LBG+ community rather than individual mastery. Thus, the results suggest that there is some relationship between this sense of belonginess and preventative healthcare utilization. Further, much of this sample received healthcare from integrated care settings that ensure that patients are up to date on recommended screenings and vaccinations. The lack of moderation found in this study is also likely related to the fact that there was no significant relation between the minority stress variables and healthcare utilization, thus making it difficult to find a moderating effect.

Hypothesis four, which examined whether gender functioned as a moderator, was partially supported. Gender moderated the relation between anticipated stigma and healthcare utilization, as well as internalized heterosexism and healthcare utilization. For both of these proximal stressors, there was an opposite effect for men and women such that higher minority stress predicted less preventative care for men, but higher minority stress predicted more preventative care for women. One explanation for these moderation findings could be that distress can lead to somatization and healthcare utilization in women, while instead it is more likely to lead to healthcare avoidance for men. Indeed, past research has shown that abuse history is associated with increases in somatization and healthcare utilization in women but reductions in men (Tomenson et al., 2012). It is possible that other forms of distress like anticipated stigma

and internalized heterosexism during time in service may lead to similar somatization effects and thus greater healthcare utilization in women. This relation between minority stress and somatization was not examined in this study, but it should be further explored.

For men, distress can lead to avoidant coping which could lead to avoiding healthcare as well, providing fewer opportunities to receive recommended screenings and vaccinations. Additionally, there could be a higher potential social "cost" for men when disclosing their sexuality than for women; this is likely especially true within the military's hypermasculine and heterosexist culture (Pachankis et al., 2020; Lehavot & Simpson, 2013). This could lead to men concealing their sexual orientation or sexual behaviors from a provider, leading to a lower likelihood of receiving recommended screenings and vaccinations. In addition to concerns about stigma, the preventative healthcare recommendations for men who have sex with men are more invasive than the screenings for men have sex with women. For example, if a man is engaging in receptive oral or anal sex, it is recommended that he is screened for gonorrhea and chlamydia of both the throat and rectum. This perceived additional burden may contribute to healthcare avoidance. Indeed, men who were recommended to get these invasive and potentially stigmatized rectal, urethral, and throat screenings for gonorrhea and chlamydia, but did not receive them, had have lower healthcare utilization overall compared to men who received these screenings. Overall, the unexpected results of minority stress predicting more healthcare utilization in women and less healthcare utilization in men add to the prior mixed results of gender moderating the relation between minority stress and health outcomes (Pachankis et al., 2020; Timmins et al., 2020; Feinstein et al., 2019; Rothman et al., 2012).

Limitations

It is important to note several limitations of the current study. The sample in this study was younger, had a higher household income, a higher proportion of women, a higher proportion of bisexual/pansexual individuals, a higher proportion of individuals who serve/d in the Army than the service member and veteran population, and lower proportion of individuals with history of head injury or loss of consciousness. However, it does seem to reflect the most recent research that compared to their heterosexual counterparts, the LGB+ population is younger and includes more women. Because there is not much information about the complete demographic makeup of LGB+ service members and veterans, it is uncertain the extent to which the current sample is a representative of the entire LGB+ subset of service members or veterans.

Another limitation is that race and sexual orientation were dichotomized in this study due to lower numbers of American Indian, Alaskan Native, and Pacific Islander individuals, as well as lower numbers of asexual, questioning, and queer individuals. However, it should be acknowledged that LGB+ veterans have a variety of experiences that may be influenced by their diverse cultures, as well as sexual orientation identities. Future studies with larger sample sizes should investigate differences in minority stress and healthcare utilization in these harder to reach racial and sexual orientation groups.

A third limitation is that the healthcare utilization variable focused on prevention in a primary care setting. As in past studies, this method of obtaining an objective score weighted all screenings and vaccinations equally, but there may have been varying degrees of difficulty related to receiving each screening or vaccination due to a variety of factors including availability of patient or provider, access, cost, stigma, and invasiveness of procedures (Whitehead et al., 2016). Additionally, in veteran populations healthcare utilization is often

assessed by examining the number of visits in a given time period or by examining whether or not a participant has used various levels of care (e.g., primary care, specialty care, mental health services, emergency care) in the past year (Weitlauf et al, 2020; Di Leone, et al., 2016; Haskell et al., 2011). However, in the present study healthcare utilization was assessed by examining the number of preventative health care screenings and vaccinations that a participant has received. This study's assessment of health care utilization is more consistent with a primary prevention and secondary prevention focus rather than a tertiary prevention focus. This may lead to difficulties in comparing healthcare utilization in the present study to existing studies.

Fourth, because this study only included sexual minority individuals, there was no comparison sample of heterosexual veterans. Thus, we cannot draw conclusions about differences between sexual minority and heterosexual veterans. Next, the minority stress variables, validation questions, and healthcare utilization questions in the survey were forced response questions. This could have affected the quality of participant responses as participants sometimes choose invalid responses in an effort not to answer difficult or uncomfortable questions (Albaum et al., 2010).

Fifth, this study did not control for the time since participants last served in the military. As such, systematically differences in minority stress among those who had served more and less recently could not be evaluated. Finally, a more advanced statistical technique with a larger sample size, such as structural equation modeling, may have allowed for a model that was more closely in line with the original minority stress model and could have provided a more comprehensive conceptualization of distal stressors, proximal stressors, and resilience through the use of latent variables.

Clinical Implications and Future directions

Bearing these limitations in mind, the findings of this study have a number of potential implications for practice and research. Regarding clinical practice, it may be helpful for behavioral health providers to work to encourage community-oriented resilience in LGB+ individuals with military service histories, as resilience, operationally defined here as collective self-esteem, emerged as a predictor of preventative primary care utilization. Further, it may be helpful for primary care and behavioral health care providers to understand that men and women may have different responses to minority stress during their time in service that can have lasting consequences. For instance, this study suggested that men may be more likely to cope with minority stress by engaging in care avoidance, while women may be more likely to seek formal help following experiences of minority stress and its sequelae. Additionally, both primary care and behavioral health providers working with LGB+ adults with military histories should screen for mental health conditions including MST histories and trauma-related symptomology related to military experiences (e.g., MST, combat experience) given the high prevalence and opportunity to provide preventative physical healthcare. Thus the implications of this study, especially those focused on building resilience and for screening for mental health conditions provide support for the inclusion of behavioral health providers in healthcare settings.

Questions were elicited in this study that warrant more investigation in future research. For one, it would be helpful to better understand the factors that contribute to bisexual/pansexual women's greater healthcare utilization as compared to their lesbian peers. Additionally, while this study explored the role of minority stressors during time in service, future research could examine the differences and the "dose" of minority stress during DADT. Further, future studies could investigate the role of pre-military and current minority stressors on healthcare utilization

to gain a more comprehensive understanding of potential relations. Next, it is noteworthy that there was a crossover effect in the moderation of gender for anticipated stigma and internalized heterosexism. Future research should examine possible reasons for these differences such as coping styles, comfort in healthcare facilities, adherence to rigid hypermasculine gender roles, and the stigma associated with sexual minority identity disclosure. Further, this is one of few studies that examined veterans utilizing multiple health systems including the DoD, VHA, and civilian healthcare systems. While the majority of participants received care from integrated health systems that generally track patients' recommended screenings and vaccinations, it is possible that preventative healthcare utilizations may systematically vary in different types of health systems. Additionally, future work should explore whether patient and provider knowledge of recommended screenings and vaccinations is related to healthcare utilization. Further, while latent variable modeling of constructs was not used in this study, this advanced statistical technique may have allowed for a model that better represented the original minority stress model. Since structural equation models include both measurement error and structural error in the analysis, this method also has better predictive power, can better account for shared variance, and can illustrate relationship between constructs with less random error.

Conclusion

This is the first study to examine seven types of minority stressors as predictors of healthcare utilization. Additionally, it is one of the first studies to examine healthcare utilization in an LGB+ veteran sample comprised of individuals who have served since the repeal of DADT. This sample was composed of more women than typical veterans' surveys, but the younger, prominently bisexual/pansexual sample may reflect the changing demographics of recent veterans and service members. Minority stress during time in service alone did not predict

healthcare utilization. Instead, healthcare utilization seemed to be driven primarily by health need, likely due to the integrated nature of the healthcare systems of the VHA and DoD from which most participants receive care. Overall, this preliminary study suggests that minority stress during time in service does not strongly predict healthcare utilization when modeled with hierarchical linear regression. However, future studies should explore the relation between current minority stress experiences, including in healthcare settings, and preventative healthcare utilization. Work in these areas can help to decrease the disparities in healthcare utilization between LGB+ veterans and their heterosexual peers.

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Appendix A: IRB Exempt Certification

EAST CAROLINA UNIVERSITY
University & Medical Center Institutional Review Board
4N-64 Brody Medical Sciences Building· Mail Stop 682
600 Moye Boulevard · Greenville, NC 27834
Office **252-744-2914** · Fax **252-744-2284** ·
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Notification of Exempt Certification

From: Social/Behavioral IRB
To: Juinell Williams
CC: Heather Littleton
Date: 12/10/2019
Re: UMCIRB 19-002880
Healthcare utilization among sexual minority veterans

I am pleased to inform you that your research submission has been certified as exempt on 12/9/2019. This study is eligible for Exempt Certification under category # 2a.

It is your responsibility to ensure that this research is conducted in the manner reported in your application and/or protocol, as well as being consistent with the ethical principles of the Belmont Report and your profession.

This research study does not require any additional interaction with the UMCIRB unless there are proposed changes to this study. Any change, prior to implementing that change, must be submitted to the UMCIRB for review and approval. The UMCIRB will determine if the change impacts the eligibility of the research for exempt status. If more substantive review is required, you will be notified within five business days.

Document	Description
Consent (0.01)	Consent Forms
Debriefing Form(0.01)	Additional Items
Protocol(0.01)	Study Protocol or Grant Application
Recruitment(0.02)	Recruitment Documents/Scripts
Survey(0.01)	Surveys and Questionnaires

For research studies where a waiver of HIPAA Authorization has been approved, each of the waiver criteria in 45 CFR 164.512(i)(2)(ii) has been met. Additionally, the elements of PHI to be collected as described in items 1 and 2 of the Application for Waiver of Authorization have been determined to be the minimal necessary for the specified research.

The Chairperson (or designee) does not have a potential for conflict of interest on this study.