

PrEP Prescription Among MSM U.S. Military Service Members: Race and Sexual Identification Matter

American Journal of Men's Health
November-December 1–9
© The Author(s) 2022
Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/15579883221133891
journals.sagepub.com/home/jmh


Gregory Carter^{1,2,3}, ILT Colten Staten⁴, Brennan Woodward¹, Brianna Mahnke⁵, and Jessica Campbell²

Abstract

An estimated 20.9% of U.S. service members report a high risk of HIV infection; however, only 2,000 service members had accessed HIV pre-exposure prophylaxis (PrEP) as of 2017. This study used a cross-sectional design to explore PrEP prescription predictors among service members who identify as a man who have sex with other men (MSM) ($n = 354$). Logistic regression was performed to assess the influence of four predictor variables: partner HIV status, race/ethnicity, primary partner gender, and sexual orientation on the odds participants' report being prescribed PrEP. A majority identified as gay ($n = 246, 69.5\%$) and 23.4% ($n = 83$) identified as bisexual. Bisexual participants were 2.1 times ($p = <.04$) less likely to be prescribed PrEP. Accordingly, those who identify their primary sex partner as female were 5.1 times less likely to be prescribed PrEP ($p < .001$). MSM service members who had a partner disclose their HIV-positive status were 4.1 times more likely to have been prescribed PrEP ($p = .013$). Finally, participants who identify as Black were 3 times more likely ($p = .001$), and Latinx MSM were 3.6 times more likely ($p = .003$) to have been prescribed PrEP.

Keywords

PrEP, U.S. military, MSM, HIV prevention

Received July 17, 2022; revised September 26, 2022; accepted October 3, 2022

Introduction

The incidence of HIV in the United States declined by 9% from 2015 through 2019 (Centers for Disease Control and Prevention, 2021a). The drop in the national HIV rate is largely credited to pharmaceutical advancements such as pre-exposure prophylaxis (PrEP) and U = U, which are helping to eliminate HIV (Eisinger et al., 2019; Koss et al., 2021). PrEP is a form of HIV prevention that includes sex risk reduction education and a once-daily pill that, when taken as directed, has been proven to reduce the chance of acquiring HIV by more than 90%. U = U stands for “undetectable equals untransmittable.” Meaning that people living with HIV who achieve and maintain an undetectable viral load cannot pass the virus on to others. Not all groups demonstrate an equitable decline in diagnoses. In the United States, men who have sex with other men (MSM) bear a disproportionate disease burden of

HIV, accounting for 58% of new diagnoses (Centers for Disease Control and Prevention, 2021b). In accordance with national trends, active-duty MSM comprise the vast majority of HIV infections among military personnel. The percentage of new HIV infections that occur among active-duty MSM has remained consistent over the past few years (Campbell et al., 2017; Hakre et al., 2012, 2015).

¹Indiana University School of Nursing, Bloomington, IN, USA

²Kinsey Institute, Bloomington, IN, USA

³Rural Center for AIDS/STD Prevention, Bloomington, IN, USA

⁴Walter Reed National Military Medical Center, Bethesda, MD, USA

⁵Indiana University School of Medicine, Indianapolis, IN, USA

Corresponding Author:

Gregory Carter, Indiana University School of Nursing, 1125 Atwater Avenue, Bloomington, IN 47401, USA.
Email: gracarte@IU.edu



The difficulty of identifying people who identify as MSM is only one of the problems in reaching out to active-duty military personnel for HIV prevention. Finding individuals who are eligible for PrEP has been difficult. The number of MSM active-duty service members is less than that of the general population, with 1.9% of males identifying as gay and 2% identifying as bisexual (Meadows et al., 2018). However, 2.2% of active-duty men surveyed reported that they were mostly or only attracted to men, followed by 1.2% who stated they were equally attracted to men and women, and 4.3% described themselves as being mostly attracted to women (Meadows et al., 2018). The majority (90.1%) stated they were attracted to women exclusively, and 3.3% of male service members surveyed reported a sexual encounter with another man in the previous 12 months (Meadows et al., 2018). The impact of HIV on historically marginalized populations has been well-documented; however, a void exists in the literature regarding the effect of HIV on understudied populations such as active duty service members who identify as MSM, leaving them underrepresented in the field and diminishing the conversation about their experiences.

The Military has taken an active approach to the HIV continuum of care, including free medical care and PrEP, compared with the general public. All military service members are required to be screened for HIV every 2 years. However, there is no standard method for identifying those service members who are at a more significant risk of acquiring HIV and, thus, require more frequent testing (Military Benefit Association, 2021; Office of the Assistant Secretary of Defense, 2004). Notably, despite access to free health care, prescription medications, and mandated HIV screening, roughly 350 active-duty service members are diagnosed with HIV annually (Okulicz et al., 2017). The Centers for Disease Control and Prevention recommends that everyone between the ages of 13 and 64 gets tested for HIV at least once, and those at higher risk receive testing at least once per year (Centers for Disease Control and Prevention, 2020). And individuals at significant risk of HIV acquisition may benefit from testing every 3–6 months (Workowski et al., 2021). In the United States, annual HIV testing is recommended for those at greatest risk; nevertheless, in light of the U.S. Military's biennial testing policy, 4.3% of active duty service members were considered high risk and untested within the previous year (Meadows et al., 2018).

According to data from 2021, the greatest proportion of HIV cases in the military among enlisted people are individuals in the National Guard and the Army reserves ("Update," 2021). A recent study on military service members' health-related behaviors showed that the Marine Corps and Navy had the highest percentage of

personnel who were considered high risk for contracting HIV (Meadows et al., 2018). And service members from the Marine Corps, the Army, and the Navy had high percentages of individuals reporting condomless sex with a new partner in the previous 12 months (Meadows et al., 2018).

Amid increasing rates of HIV and high risk for sexually transmitted infections, including HIV, PrEP usage among active-duty service members remains below ideal rates. As of 2016, approximately 2,000 service members and their dependents have been prescribed PrEP (Blaylock et al., 2018). Although this may denote a positive trend in PrEP uptake, approximately 12,000 active duty service members are suitable candidates for PrEP, further demonstrating the gap between need and utilization (Blaylock et al., 2018). The large number of people who could prevent HIV with PrEP but are not taking it suggests that the current system for identifying those at risk is not working. And a recent systematic review of HIV prevention among U.S. military service members reported that while some research exists, more is needed to understand how best to prevent HIV acquisition among this population (Rodriguez & Mitchell, 2022).

Many civilians cite societal and health care-related stigma, cost, and a lack of medical care as roadblocks to PrEP adoption (Felsher et al., 2018; Laborde et al., 2020; Pleuhs et al., 2020). Because active-duty personnel typically have many of these barriers addressed, it is difficult to describe how other obstacles impact PrEP use among this population, especially when service members should be able to easily access HIV prevention. Prescription rates for PrEP are low among active-duty service members, especially those who identify as MSM. Therefore, the current study aimed to identify the factors associated with whether or not these service personnel have been prescribed PrEP.

Method

Design and Subjects

A cross-sectional study was fielded from February 18, 2021, through February 22, 2021. Inclusion criteria included: (a) at least 18 years of age; (b) identify as an active-duty member of the U.S. military; and (c) identify as a man who has sex with other men. To identify participants for this study, we placed digital fliers on social media sites specifically for members of the U.S. military. First, we contacted the moderators of these sites and gave them a summary of our study's goals and asked them to distribute our flier to their members. The flier directed interested individuals to a secure Qualtrics page that provided more information about the specifics of the

study. The survey took approximately 4 min to complete and participants were given the option of receiving a US\$10.00 electronic gift card in exchange for their time. All materials and procedures were approved by the Indiana University Institutional Review Board (protocol 10398).

Before starting the survey, participants were required to read a study information sheet and provide electronic consent to participate. A total of 389 participants initiated the survey. Of those who entered the survey, 3.5% ($n = 14$) did not advance beyond the second question. To help ensure high-quality responses, an attention check question was developed for the survey that asked participants to select a specific color from four options (red, blue, yellow, and green). Failure to select the directed color resulted in removal from the survey. Twenty-one (5.3%) participants did not pass the attention check question and, therefore, were not included in the final analysis. Results were subsequently examined for completion, yielding a final sample size of 354.

Conceptual Framework

The Predisposing, Reinforcing, and Enabling Constructs in Educational Diagnosis and Evaluation (PRECEDE)-Policy, Regulatory, and Organizational Constructs in Educational and Environmental Development (PROCEED) framework was used to guide the development of this study. This framework was chosen because it offers a comprehensive model for assessing population-based health needs and provides a focused structure to aid in developing and implementing public health programs. The PRECEDE-PROCEED framework consists of three main phases: (a) PRECEDE: This phase is focused on needs assessment and covers the following topics: health status, health determinants, and core indicators. (b) PROCEED: This phase is focused on program planning and implementation and covers the following topics: program components, program delivery, and evaluation. (c) IMPLEMENT: This phase is focused on program implementation and covers the following topics: community mobilization, resource acquisition, and political support. The PRECEDE phase was used in this study to better understand the key influencers of HIV prevention among active-duty male military personnel. The findings from this stage will be utilized to design intervention strategies in the PROCEED phase.

Measures

Branch of Military Service. The branch of the military service was assessed using a question developed for this study and asked participants to select their branch from a list of six options (Army, Marine Corps, Navy, Air Force, Coast Guard, and National Guard).

Sociodemographics. Participants were asked to report their age group, gender (male, transgender, gender non-binary), race/ethnicity (Black/African American, Latinx, Pacific Islander, Native American, Asian, Caucasian), partner gender identification (male, female, transgender), and partner HIV status (e.g., partner told me they are HIV positive). For the sake of this study, we are referring to MSM as men who may identify as straight, but engage in sexual activities with other men. The acronym MSM was first coined in the early 1990s by public health officials to better understand the transmission dynamics of HIV among men who have sex with men, but who may not identify as gay or bisexual (Workowski et al., 2021).

Disclosure of Sexual Identification. What participants thought about the experience of disclosing their sexual identity to a health care provider was assessed using one question developed for this survey. This question asked the participants to identify how they perceive the experience of disclosing sexual identification to a health care provider would be (negative experience, neither positive nor negative, positive experience).

PrEP Prescription. To identify individuals who have been treated with PrEP, a dichotomous question was used in this survey asking whether they have ever been prescribed PrEP (yes/no). A definition of PrEP was provided to educate the participants and prevent any assumptions that all participants knew about it beforehand.

Statistical Analysis

Prior to analysis, an examination of assumptions indicated no multicollinearity. Data analysis was conducted in three phases. First, descriptive data analysis was conducted via univariate analysis. Second, the relationship between the independent variables and dependent variables was examined using bivariate analysis. Finally, binary logistic regression was used to model the dependent variable, *PrEP prescription*, as a function of the predictor variables. All analyses were conducted using the Statistical Package for the Social Sciences version 28.

Results

Descriptive Analysis

A majority of the participants reported serving in the Army ($n = 140$, 39.5%), followed by 20.3% ($n = 72$) who served in the Marines, and 15% ($n = 53$) who reported serving in the Navy. In regard to race/ethnicity, 37.6% ($n = 133$) identified as white, 25.4% ($n = 90$) identified as Black, and 20.3% ($n = 72$) identified as Latinx. Most were between the ages of 25–34 (69.5%, $n = 246$) and

Table 1. Demographics of the U.S. Military Men Who Have Sex With Other Men Survey ($n = 354$), 2021.

Variable	N	%
Branch of service		
Army	140	39.5
Marine Corps	72	20.3
Navy	53	15
Air Force	39	11
Coast Guard	21	5.9
National Guard	29	8.2
Race/ethnicity		
Black	90	25.4
White	133	37.6
Latinx	72	20.3
Asian	6	1.7
Pacific Islander	17	4.8
Native American	20	5.6
Gender		
Male	341	96.3
Transgender	13	3.7
Sexual identity		
Straight	25	7.1
Gay	246	69.5
Bisexual	83	23.4
Primary sex partner gender identity		
Male	277	78.2
Female	67	18.9
Transgender	10	2.8
Primary sexual partner HIV status		
Partner told me they are HIV positive	61	17.2
I think my partner is HIV positive	53	15
I do not know partners HIV status	68	19.2
I think my partner is HIV negative	101	28.5
Partner told me they are HIV negative	71	20.1
Prescribed PrEP		
Yes	196	55.3
No	60	16.9

Note. PrEP = pre-exposure prophylaxis.

15% ($n = 53$) were between the ages of 35 and 44. A total of 341 (96.3%) participants identified as male and 3.7% ($n = 13$) identified as transgender. Out of the total respondents, 28.5% ($n = 101$) said they "thought" their partner was HIV negative, 20.1% ($n = 71$) claimed that their partner told them they were HIV negative, and 17.2% ($n = 61$) revealed that their partner directly informed them of being HIV positive. A description of study demographics is presented in Table 1.

Bivariate Analysis

Chi-square analysis indicated that being prescribed PrEP was associated with having a male as a primary sexual

partner, $\chi^2(3) = 32.26, p < .001$. Specifically, 89.3% ($n = 175$) of the active duty MSM prescribed PrEP had a male as their primary sexual partner, followed by 8.7% ($n = 17$) who reported a female as their primary sexual partner. In addition, the perception of disclosing sexual identity to health care providers was significantly associated with PrEP prescription, $\chi^2(2) = 14.74, p = .001$. Participants who believed disclosing their sexual identity to a health care provider would be a positive experience accounted for the majority of those prescribed PrEP (63.8%), compared with only 8.7% who believed sexual identity disclosure would be a negative experience being prescribed PrEP.

Race and ethnicity were also significantly associated with PrEP prescription, $X^2(7) = 41.37, p < .001$, with 31.1% ($n = 64$) of the participants who identified as Latinx reported being prescribed PrEP. Partner HIV status exhibited a significant association with PrEP prescription, $\chi^2(4) = 38.07, p < .001$. Out of the participants whose partner *told* them they were HIV positive, 28.1% ($n = 55$) were prescribed PrEP. And 22.4% of those who *thought* their partner were HIV negative and were prescribed PrEP. Sexual identification was also significantly associated with PrEP prescription, $\chi^2(2) = 22.71, p < .001$, with 79.6% ($n = 156$) of those who identify as gay being prescribed PrEP. Finally, the branch of service did not yield a significant association, $\chi^2(5) = 9.90, p = .078$.

Multivariable Analysis

Logistic regression results indicate that the model was statistically significant ($p < .001$). The model explained 39% (Nagelkerke R^2) of the variance in PrEP prescription among active duty MSM and correctly classified 74.3% of the cases. Sensitivity was 82.7%, specificity was 63.9%, and the positive predictive value was 73.9%. Compared with Army service members, those participants who reported serving in the National Guard were 85% less likely to have been prescribed PrEP (odds ratio [OR] = .150, 95% confidence interval [CI] = [.045, .505], $p = .002$). Participants who identified as bisexual were 60% less likely to have been prescribed PrEP compared with those who identify as gay (OR = .399, 95% CI = [.191, .830], $p = .014$). The service members who had a partner communicate their HIV-positive serostatus had 11 times higher odds to have been prescribed PrEP (OR = 11.14, 95% CI = [3.173, 39.112], $p < .001$). Identifying as Black (OR = 2.9, 95% CI = [1.512, 5.686], $p = .001$) and Latinx (OR = 3, 95% CI = [1.239, 7.273], $p = .015$) resulted in having 2.9 times and 3 times higher odds of being prescribed PrEP, respectively. Finally, those men who think that disclosing their sexual identity to a primary care provider would result in a negative outcome were 68% less likely to have been

Table 2. Binary Logistic Regression U.S. Military Men Who Have Sex With Other Men Survey (n = 354), 2021.

Variable	B	SE	OR	95% CI [lower, upper]	p
Branch of military					
Marines	-.025	.355	.98	[-.486, 1.96]	.945
Navy	-.227	.386	.80	[-.374, 1.70]	.557
Air Force	.368	.457	1.45	[-.590, 3.547]	.421
Coast Guard	-.214	.623	.81	[-.238, 2.74]	.731
National Guard	-1.90	.618	.15	[-.045, .505]	.002*
Army	—	—	—	—	—
Sexual identification					
Straight	.293	.612	1.34	[-.404, 4.45]	.632
Bisexual	-.920	.374	.399	[-.191, .830]	.014*
Gay	—	—	—	—	—
Partner gender identification					
Female	-1.60	.451	.201	[-.083, .488]	<.001*
Transgender	-1.12	.814	.327	[-.066, 1.61]	.169
Male	—	—	—	—	—
Partner HIV status					
Partner told me they are HIV positive	1.73	.640	5.63	[1.60, 19.74]	.007*
I think my partner is HIV positive	-.388	.458	.68	[-.276, 1.67]	.397
I do not know my partner's HIV status	—	—	—	—	—
I think my partner is HIV negative	-.683	.372	.51	[-.244, 1.05]	.066
Partner told me there are HIV negative	-.697	.426	.498	[-.216, 1.15]	.102
Race/ethnicity					
Black	1.08	.388	2.93	[1.51, 5.69]	.001*
Latinx	1.10	.452	3.00	[1.24, 7.27]	.015*
Asian/Pacific Islander	.253	.573	1.29	[-.419, 3.96]	.659
Native American	.092	.580	1.10	[-.352, 3.41]	.874
White	—	—	—	—	—
Perception of sexual identification disclosure					
Negative experience	-1.15	.436	.316	[-.134, .743]	.008*
Neither positive nor negative	—	—	—	—	—
Positive experience	-.097	.323	.907	[-.482, 1.71]	.764

Note. OR = odds ratio; CI = confidence interval.

*significance set at $p = .05$.

prescribed PrEP (OR = .316, 95% CI = [.134, .743], $p = .008$). Table 2 presents the binary logistic regression results examining the predictors of an active duty MSM being prescribed PrEP.

Discussion

Despite efficacious advances in HIV prevention, uptake of PrEP among active-duty members of the U.S. military continues to be suboptimal. However, considering current barriers to PrEP prescription, the military health system exhibits positive trends that are cause for evaluation. Individuals who are in a serodiscordant relationship are one of the most important groups for health care providers to link into HIV treatment and PrEP plans of care (Muessig & Cohen, 2014). And our findings reveal active duty MSM who reported being in a serodiscordant

relationship had 11 times higher odds of receiving PrEP prescription than those who did not report being in a serodiscordant relationship. Suggesting that MSM in a sexual relationship with an HIV-positive partner are able to recognize the higher risk and start taking PrEP. Another possible explanation for this finding is the impact of increased awareness of PrEP and the health benefits associated with viral suppression of HIV. Men who are in a serodiscordant relationship may also proactively seek information motivated by their intention to protect the HIV-negative partner, resulting in an increased likelihood of engaging in preventive measures, such as PrEP. It may also be the case that HIV-negative partners obtain increased knowledge of PrEP through their HIV-positive partners as a component of open partner communication. Future research is needed to better understand the impact of same-sex partner communication and motivation to

participate in HIV prevention programs among military service members.

Previous research investigating the primary care of MSM in the U.S. military reported a general increase in HIV diagnoses since 2010, ranging from 21 to 74 per 100,000 (Campbell et al., 2017). Higher rates of HIV were identified in the Reserve or National Guard components (Campbell et al., 2017). This finding is of particular concern as our study identified that serving in the National Guard was associated with an 85% lower chance of being prescribed PrEP. It is possible that MSM serving in the Reserve or National Guard components experience systemic issues such as reduced access to health care. Because individuals who serve in the National Guard and Reserve components are often not on active-duty orders, they may be more likely to be excluded or overlooked from more traditional continuums of prophylactic care, resulting in increased rates of HIV. Therefore, further investigation of the variables surrounding HIV prevention among the individual branches of service may decrease the HIV burden among these groups. It is also critical to examine variance in the usage and approach to HIV prevention and therapy resources among branches of the military to get a comprehensive picture of the environment.

Bisexual men have a higher chance of acquiring HIV and are responsible for the majority of transmissions from males to females. Despite the increased risk of HIV acquisition, our findings revealed identifying as bisexual was associated with 60% lower odds of receiving PrEP. We are not able to determine if those participants who identify as bisexual communicate their sexual encounters to their male and female partners equally, or to what degree bisexual participants engage in sexual risk behaviors with men and women. In accordance with the present results, previous studies have demonstrated that bisexual men were more likely to engage in certain sexual risk behaviors such as condomless anal sex and were less likely to report PrEP use (Feinstein & Dodge, 2020; Friedman et al., 2014, 2019). In addition, bisexual men are also less likely to receive HIV testing than their gay counterparts, and those men who had female sexual partners in the previous year were less likely to disclose same-sex sexual behaviors to their health care provider (Bernstein, 2008; Feinstein et al., 2019). These studies are significant because they underscore disparities regarding the sexual health care of men who identify as bisexual. These findings also emphasize the potential adverse consequences of grouping similar sexual identities, such as gay and bisexual men, under one label (MSM). It is important to examine the variations between those men who identify as gay, bisexual, or straight to develop targeted interventions. Future research on intimate relationships and communication with health care providers

concerning sexual health is needed to develop interventions that address the distinct challenges and limitations faced by bisexual men and women.

In fact, over half (68%, $n = 241$) of our participants thought discussing their sexual orientation with a health care provider would have a negative impact. As a result, it is conceivable that bisexual men are not being recognized as viable PrEP candidates owing to cultural stigma and hiding of important sexual risk factors as an attempt to avoid disclosure. This supports the results of other studies that reported MSM who experienced discrimination were less likely to access health care services and MSM who were not out to their health care providers were less likely to be prescribed PrEP compared with MSM who have disclosed their sexual identity to their health care provider (Furukawa et al., 2020). To minimize stigma, it is critical to evaluate current clinical practice and make room for more open and safe HIV screening methods among active-duty MSM. These modifications would have the ability to identify troops who are at the highest risk of contracting HIV, such as those who identify as bisexual or report condomless receptive anal sex, and start them on a PrEP regimen.

The decreased PrEP prescription rate among those who identify as bisexual may also suggest that providers' perceptions regarding the medication's intended population require examination. Through a provider's lens, PrEP is often erroneously associated exclusively with gay-identifying MSM, despite a large portion of HIV-positive statuses/seroconversions belonging to other demographics (Thomann et al., 2018). Therefore, a service member who identifies as bisexual and withholds their sexual identification may be inadvertently omitted or overlooked. However, if providers are able to normalize sexual health screening as part of a comprehensive patient assessment, they may be able to develop a deeper level of trust with their patients and, therefore, identify appropriate prevention/treatment measures.

The heteronormative culture of the military, and society in general, has fostered a sense of fear regarding sexual identification. This fear has been exacerbated in the military via policies such as "Don't Ask, Don't Tell" (Katz, 2010; Smith, 2008). Although there has been a great deal of transformation among branches of the US military, sexual identity disclosure continues to carry a heavy burden. The remaining stigmatizing policies stipulate that HIV-positive individuals cannot enter into military service, may only hold certain positions, and are only eligible for specific non-combat deployments (Congressional Research Service, 2019; Lalwani, 2020). Antiquated military policies perpetuate the stigma concerning HIV and may compel individuals who have not disclosed their sexual identification or gender identity to remain closeted. Furthermore, stigmatizing policies

directed at lesbian, gay, bisexual, and transgender individuals may partially explain our finding that those who anticipated disclosing their sexual identity to a health care provider would lead to a negative outcome experienced a 68% lower odds of being prescribed PrEP. This finding is problematic because even if military health providers are able to improve the proficiency of sexual health screenings, fear of disclosing sexual identity may preclude clinical discussions that ultimately lead to PrEP prescription.

Holistic sexual health education in the military would increase the visibility of available resources and may help prevent HIV by shifting the debate from a medical perspective to a more comprehensive view of sexual health. By doing so, we may also be able to reduce some of the stigma attached to the HIV continuum of care. In addition, some ways to reduce the stigma around HIV include improving sexual health education, social support, and involvement from both the patient and provider perspectives (Yabes et al., 2021). Increasing the visibility of HIV prevention interventions, and revising policies that discriminate against people living with, and at increased risk of, HIV are important priorities. Recently, The Department of Defense has amended guidelines to destigmatize service members living with HIV (Department of Defense, 2022). However, continued review of military policies is necessary to identify and remove other barriers to care. This is significant because the military offers a unique opportunity to improve sexual health outcomes for marginalized populations within their ranks. To leverage these opportunities, holistic sexual health education should be incorporated into routine military medical care. This approach will help ensure that each service member receives the same standard of care, and is a substantial step toward preventing individuals from being alienated on the basis of their sexual identity or sexual risk factors.

Our study also identified that MSM service members who identify as Black or Latinx were more likely to have been prescribed PrEP compared with their white counterparts. This finding presents another perspective on the health care of people of color in the United States, namely, the ongoing issue concerning inequitable access to health care (Guth et al., 2020; Johnston et al., 2021). Black and Latinx individuals have uninsured rates of 11.4% and 20%, respectively, compared with white Americans who report a 7.8% uninsured rate. People of color experience similar disparities regarding access to PrEP, as Black and Latinx MSM are prescribed PrEP at a lower rate than their white counterparts (Kanny et al., 2019). However, serving in the military may offer insight into the necessity of reducing barriers to health care, including PrEP, given our finding that Black and Latinx MSM were prescribed PrEP at a higher rate than those who identify as white.

This finding echoes previous research by, Beltran et al. who reported 71% of the black gay and bisexual men in the military expressed interest in PrEP (Beltran et al., 2021). The aforementioned study reported men who felt more comfortable disclosing their sexual identity to their health care provider were more likely to access PrEP compared with those who did not feel comfortable disclosing their sexual identification (Beltran et al., 2021).

In accordance with present results, previous studies have reported that the military health care settings are often seen as impeding sexual identification disclosure (Biddix et al., 2013). It is counterproductive to assume we are able to improve HIV-associated outcomes among marginalized individuals in an environment that does not offer the capacity to engage in open conversations about sexual health and behavior.

Conclusion

Active duty men who identify as bisexual may be more likely to be exposed to, or transmit, HIV partially due to the cultural stigma associated with their sexuality, lack of knowledge concerning HIV prevention options, and understanding of how PrEP may be able to help them. There remains a need for systematic evaluation of opinion and attitudes on disclosure of sexual orientation, behavior, and identity to understand the state of the modern military environment. Unsupportive and stigmatizing environments will contribute to nondisclosure, avoidance of health care, and adverse health outcomes among marginalized populations. Further inquiry should also be made into the anticipated experiences and fears of sexual identity disclosure or even being screened for PrEP in general among military populations.

Service members are required to obtain HIV screening biennially; however, this does not include a mandate to screen each individual for PrEP, placing the burden on the patient to initiate the conversation. To reach the estimated 12,000 service members who are appropriate candidates for PrEP, the military should adopt an opt-out screening approach for PrEP. Integration of a standardized method of PrEP screening would be a positive step toward increasing uptake while normalizing conversations about PrEP. The military health system offers a significant advantage to those who serve, removing many barriers to health care access. However, making it easier for service members to access sexual health care outside the military health system may help overcome barriers to PrEP. Many non-military providers provide similar services, and some could be more convenient or accessible for service members.

This study has several limitations worth noting. The cross-sectional design of the study, while informative, is not able to convey causation. Similar to other online

surveys, we cannot guarantee that a participant was not pretending to be a service member. However, utilizing social media sites that are moderated by service members improves the chances that our survey was seen by individuals who met our criteria. Although we made efforts to obtain representation from all branches of the military, some such as the National Oceanic and Atmospheric Administration and the United States Public Health Services Corps were not represented in this study. Future studies should aim to capture the voices and experiences of these branches. Concerning gender, we only included participants who identify as MSM. Therefore, the experiences of individuals who identify as male to female transgender are not able to be extrapolated. Future studies exploring the intersection of transgender and gender non-binary service members are required to better understand their experiences. Although we are able to describe the history of PrEP prescriptions among our sample, we were unable to discuss how or where participants obtained their prescriptions. Future studies exploring PrEP uptake among service members should examine how ease of access may play a role in prescription rates. Our sample size is also worth noting as it is relatively small and may not be representative of all service members who identify as MSM.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The authors disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This study was made possible in part by funding from Indiana University School of Nursing Bloomington.

ORCID iD

Gregory Carter  <https://orcid.org/0000-0001-9974-5587>

References

- Beltran, R. M., Schuyler, A. C., Blair, C. S., Goldbach, J. T., Castro, C. A., & Holloway, I. W. (2021). "That's kind of like the big struggle right now is can we get PrEP?" Facilitators and barriers to PrEP uptake among active duty gay and bisexual men. *Sexuality Research & Social Policy*. Advance online publication. <https://doi.org/10.1007/s13178-021-00622-6>
- Bernstein, K. T. (2008). Same-sex attraction disclosure to health care providers among New York City men who have sex with men: Implications for HIV testing approaches. *Archives of Internal Medicine*, *168*(13), 1458–1464. <https://doi.org/10.1001/archinte.168.13.1458>
- Biddix, J. M., Fogel, C. I., & Perry Black, B. (2013). Comfort levels of active duty gay/bisexual male service members in the military healthcare system. *Military Medicine*, *178*(12), 1335–1340. <https://doi.org/10.7205/MILMED-D-13-00044>
- Blaylock, J. M., Hakre, S., Okulicz, J. F., Garges, E., Wilson, K., Lay, J., Roska, E. A., Michael, N. L., Beckett, C. G., Cersovsky, S. B., Peel, S. A., & Scott, P. T. (2018). HIV preexposure prophylaxis in the U.S. military services — 2014–2016. *Morbidity and Mortality Weekly Report*, *67*(20), 569–574. <https://doi.org/10.15585/mmwr.mm6720a1>
- Campbell, W. R., Jahan, M., & Bavaro, M. F. (2017). Primary care of men who have sex with men in the U.S. military in the post-don't ask, don't tell era: A review of recent progress, health needs, and challenges. *Military Medicine*, *182*(3), e1603–e1611. <https://doi.org/10.7205/MILMED-D-16-00255>
- Centers for Disease Control and Prevention. (2020). *HIV testing*. HIV Public Health Partners. <https://www.cdc.gov/hiv/testing/index.html>
- Centers for Disease Control and Prevention. (2021a). *Diagnoses of HIV infection in the United States and dependent areas, 2019* (Vol. 32). <https://www.cdc.gov/hiv/library/reports/hiv-surveillance.html>
- Centers for Disease Control and Prevention. (2021b). *Estimated HIV incidence and prevalence in the United States, 2015–2019* (HIV Surveillance Supplemental Report, No. 1).
- Congressional Research Service. (2019). *HIV/AIDS in the military*. Department of Defense. (2022). *Department of defense updates policy on HIV-positive service members* (No. 6130.03). Secretary of Defense. <https://www.defense.gov/News/Releases/Release/Article/3055795/department-of-defense-updates-policy-on-hiv-positive-service-members/>
- Eisinger, R. W., Dieffenbach, C. W., & Fauci, A. S. (2019). HIV viral load and transmissibility of HIV infection: Undetectable equals untransmittable. *Journal of the American Medical Association*, *321*(5), 451–452. <https://doi.org/10.1001/jama.2018.21167>
- Feinstein, B. A., & Dodge, B. (2020). Meeting the sexual health needs of bisexual men in the age of biomedical HIV prevention: Gaps and priorities. *Archives of Sexual Behavior*, *49*(1), 217–232. <https://doi.org/10.1007/s10508-019-01468-1>
- Feinstein, B. A., Moran, K. O., Newcomb, M. E., & Mustanski, B. (2019). Differences in HIV risk behaviors between self-identified gay and bisexual young men who are HIV-negative. *Archives of Sexual Behavior*, *48*(1), 261–275. <https://doi.org/10.1007/s10508-018-1148-0>
- Felsher, M., Szep, Z., Krakower, D., Martinez-Donate, A., Tran, N., & Roth, A. M. (2018). "I don't need PrEP right now": A qualitative exploration of the barriers to PrEP care engagement through the application of the health belief model. *AIDS Education and Prevention: Official Publication of the International Society for AIDS Education*, *30*(5), 369–381. <https://doi.org/10.1521/aeap.2018.30.5.369>
- Friedman, M. R., Wei, C., Klem, M. L., Silvestre, A. J., Markovic, N., & Stall, R. (2014). HIV infection and sexual risk among men who have sex with men and women (MSMW): A systematic review and meta-analysis. *PLOS*

- ONE, 9(1), Article e87139. <https://doi.org/10.1371/journal.pone.0087139>
- Furukawa, N. W., Maksut, J. L., Zlotorzynska, M., Sanchez, T. H., Smith, D. K., & Baral, S. D. (2020). Sexuality disclosure in U.S. gay, bisexual, and other men who have sex with men: Impact on healthcare-related stigmas and HIV pre-exposure prophylaxis denial. *American Journal of Preventive Medicine*, 59(2), e79–e87. <https://doi.org/10.1016/j.amepre.2020.02.010>
- Guth, M., Artiga, S., & Pham, O. (2020, September 30). *Effects of the ACA Medicaid expansion on racial disparities in health and health care*. Kaiser Family Foundation.
- Hakre, S., Armstrong, A. W., O’Connell, R. J., Michael, N. L., Scott, P. T., & Brett-Major, D. M. (2012). A pilot online survey assessing risk factors for HIV acquisition in the navy and marine corps, 2005–2010. *Journal of Acquired Immune Deficiency Syndromes*, 61(2), 125–130. <https://doi.org/10.1097/QAI.0b013e31826a15db>
- Hakre, S., Scoville, S. L., Pacha, L. A., Peel, S. A., Kim, J. H., Michael, N. L., Cersovsky, S. B., & Scott, P. T. (2015). Brief report: Sexual risk behaviors of HIV seroconverters in the US Army, 2012–2014. *Journal of Acquired Immune Deficiency Syndromes*, 70(4), 456–461. <https://doi.org/10.1097/QAI.0000000000000778>
- Johnston, K. J., Hammond, G., Meyers, D. J., & Joynt Maddox, K. E. (2021). Association of race and ethnicity and Medicare program type with ambulatory care access and quality measures. *Journal of the American Medical Association*, 326(7), 628–636. <https://doi.org/10.1001/jama.2021.10413>
- Kanny, D., Jeffries, W. L., IV, Chapin-Bardales, J., Denning, P., Cha, S., Finlayson, T., & Wejnert, C., & National HIV Behavioral Surveillance Study Group. (2019). Racial/ethnic disparities in HIV preexposure prophylaxis among men who have sex with men - 23 urban areas, 2017. *Morbidity and Mortality Weekly Report*, 68(37), 801–806. <https://doi.org/10.15585/mmwr.mm6837a2>
- Katz, K. A. (2010). Health hazards of “don’t ask, don’t tell.” *The New England Journal of Medicine*, 363(25), 2380–2381. <https://doi.org/10.1056/NEJMp1012496>
- Koss, C. A., Havlir, D. V., Ayieko, J., Kwarisiima, D., Kabami, J., Chamie, G., Atukunda, M., Mwinike, Y., Mwangwa, F., Owaraganise, A., Peng, J., Olilo, W., Snyman, K., Awuonda, B., Clark, T. D., Black, D., Nugent, J., Brown, L. B., Marquez, C., . . . Balzer, L. B. (2021). HIV incidence after pre-exposure prophylaxis initiation among women and men at elevated HIV risk: A population-based study in rural Kenya and Uganda. *PLOS Medicine*, 18(2), Article e1003492. <https://doi.org/10.1371/journal.pmed.1003492>
- Laborde, N. D., Kinley, P. M., Spinelli, M., Vittinghoff, E., Whitacre, R., Scott, H. M., & Buchbinder, S. P. (2020). Understanding PrEP persistence: Provider and patient perspectives. *AIDS and Behavior*, 24(9), 2509–2519. <https://doi.org/10.1007/s10461-020-02807-3>
- Lalwani, N. (2020). Unsafe and unsound: HIV policy in the US military. *The Yale Law Journal*, 130, Article 1618. https://heinonline.org/hol/cgi-bin/get_pdf.cgi?handle=hein.journals/ylr130§ion=32&casa_token=dJJ7AbewtPQAAA
- AA:Ax1nmDks73ekLdQyw-cjROf3z29Eyiubjt0HY11O_rfJh2_RDmzv5tSUZc0sPHilPzFXA
- Meadows, S. O., Engel, C. C., Collins, R. L., Beckman, R. L., Cefalu, M., Hawes-Dawson, J., Doyle, M., Kress, A. M., Sontag-Padilla, L., Ramchand, R., & Williams, K. M. (2018). 2015 Department of defense Health Related Behaviors Survey (HRBS). *Rand Health Quarterly*, 8(2), Article 5. <https://www.ncbi.nlm.nih.gov/pubmed/30323988>
- Military Benefit Association. (2021). *Military health insurance*. <https://www.militarybenefit.org/membership-benefits/get-educated/militaryhealthinsurance/>
- Muessig, K. E., & Cohen, M. S. (2014). Advances in HIV prevention for serodiscordant couples. *Current HIV/AIDS Reports*, 11(4), 434–446. <https://doi.org/10.1007/s11904-014-0225-9>
- Office of the Assistant Secretary of Defense. (2004). *Health affairs policy memorandum—Human immunodeficiency virus interval testing* (HA Policy 04-007).
- Okulicz, J. F., Beckett, C. G., Blaylock, J. M., Hakre, S., Agan, B. K., Michael, N. L., Peel, S. A., Scott, P. T., & Cersovsky, S. B. (2017). Review of the U.S. military’s human immunodeficiency virus program: A legacy of progress and a future of promise. *MSSMR*, 24(9), 2–7. <https://www.ncbi.nlm.nih.gov/pubmed/28953410>
- Pleuhs, B., Quinn, K. G., Walsh, J. L., Petroll, A. E., & John, S. A. (2020). Health care provider barriers to HIV pre-exposure prophylaxis in the United States: A systematic review. *AIDS Patient Care and STDs*, 34(3), 111–123. <https://doi.org/10.1089/apc.2019.0189>
- Rodriguez, C. A., & Mitchell, J. W. (2022). HIV prevention research with U.S. military service members: A systematic review. *Military Medicine*. Advance online publication. <https://doi.org/10.1093/milmed/usac018>
- Smith, D. M. (2008). Active duty military personnel presenting for care at a gay men’s health clinic. *Journal of Homosexuality*, 54(3), 277–279. <https://doi.org/10.1080/00918360801982173>
- Thomann, M., Grosso, A., Zapata, R., & Chiasson, M. A. (2018). “WTF is PrEP?” Attitudes towards pre-exposure prophylaxis among men who have sex with men and transgender women in New York City. *Culture, Health & Sexuality*, 20(7), 772–786. <https://doi.org/10.1080/13691058.2017.1380230>
- Update: Routine screening for antibodies to human immunodeficiency virus, civilian applicants for U.S. Military Service and U.S. Armed Forces, active and reserve components, January 2016–June 2021. (2021). *MSSMR*, 28(9), 18–27. <https://www.ncbi.nlm.nih.gov/pubmed/34806857>
- Workowski, K. A., Bachmann, L. H., Chan, P. A., Johnston, C. M., Muzny, C. A., Park, I., Reno, H., Zenilman, J. M., & Bolan, G. A. (2021). Sexually transmitted infections treatment guidelines, 2021. *MMWR Recommendations and Reports*, 70(4), 1–187. <https://doi.org/10.15585/mmwr.r7004a1>
- Yabes, J. M., Jr., Schnarrs, P. W., Foster, L. B., Jr., Scott, P. T., Okulicz, J. F., & Hakre, S. (2021). The 3 levels of HIV stigma in the United States military: Perspectives from service members living with HIV. *BMC Public Health*, 21(1), Article 1399. <https://doi.org/10.1186/s12889-021-11462-9>