Racial differences in college students' knowledge, self-efficacy, and use of sexual violence services: a cross-sectional analysis

by

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Background: Sexual violence is highly prevalent on college campuses. Campuses implement prevention measures to increase awareness and reduce barriers to help-seeking and disclosure of campus sexual violence victimization. Current literature examines students' knowledge, self-efficacy, and use of sexual violence services to determine how these factors influence individual outcomes after victimization. Students are color are disproportionately affected by campus sexual violence; however, it remains unknown if and how race impacts students' knowledge of sexual violence services, self-efficacy to utilize sexual violence services, use of sexual violence services. The purpose of this study was to determine differences in college students' knowledge, self-efficacy, and use of sexual violence services by racial categorization. We hypothesized that students of color who visit campus health centers would have lower self-reported rates of knowledge, self-efficacy, and use of sexual violence services, compared to white counterparts.

Methods: This study was a secondary data analysis of the Giving Information for Trauma Support and Safety (GIFTSS) study. GIFTSS was a randomized control trial conducted from 2015-2018 at 28 Western Pennsylvania and West Virginia campus health centers. We analyzed baseline survey data. Race was operationalized both aggregated ("white" compared to "students of color") and disaggregated by self-reported race/ethnicity. For primary analysis, we used unadjusted regression models to compare the knowledge of sexual violence services, self-efficacy to utilize sexual violence services, use of sexual violence services by race.

Results: The sample included 2259 students, predominately white (67.8%), and cisgender female (73.3%). Students of color reported lower knowledge of sexual violence services than white students. Specifically, Asian students reported lower knowledge compared to white students. Students of color reported greater self-efficacy to use services and greater service utilization than white students. Specifically, Black students reported greater self-efficacy and greater odds of use compared to white students.

Public Health Significance: Racial disparities in college students' knowledge, self-efficacy, and use of sexual violence services continue to exist, indicating persistent gaps in current campus sexual violence prevention efforts. This study supports the need for further research to understand students of colors' unique needs and experiences related to sexual violence**.**

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Preface

I would like to thank my committee members - Drs. Hawkins, Hill, Coulter, and Miller - for their patience, guidance, and feedback throughout this project. I would also like to thank the faculty and staff within GSPH for their constant support throughout the program as we continue to navigate the COVID-19 pandemic. Finally, I would like to thank my friends and family for always being in my corner, for pushing me forward while having my back, and for occasionally sending me money for dinner.

1.0 Background

Every 68 seconds, someone in the United States is sexually assaulted (Rape Abuse & Incest National Network, 2021b). College and university settings are known to have disproportionately high prevalence rates of sexual violence. In response, campuses have developed sexual violence prevention and response resources for students. Despite extensive research, estimates of students' self-reported knowledge, self-efficacy, and use of sexual violence services are mixed. Little to no research has been conducted to understand how these specific measures may differ across racial groups. Therefore, there is an urgent need to determine if and how college students' self-reported knowledge, self-efficacy, and use of sexual violence services differ by racial and ethnic groups. This knowledge may guide the development future campus sexual violence prevention and response resources, so they may be culturally specific and trauma-informed to meet the needs of racially marginalized students.

1.1 Sexual violence is a public health problem, requiring a public health response

"Sexual violence" is a broad term used to describe sexual acts that are committed or attempted when consent of all parties is not obtained. Consent requires uncoerced, enthusiastic, and explicitly given approval for specific sexual acts; consent cannot be freely given when someone is unconscious, threatened, or perceived to be threatened by weapons, violence, or authority. Sexual violence occurs in many forms, and it does not require physical contact.

Examples of sexual violence include rape, intimate partner violence, sexual assault, sexual harassment, and stalking (Black et al., 2011).

Historically, sexual violence was limited to narrow, stereotypical definition of stranger rape. The second-wave feminist movement in the 1970s slightly widened this understanding to include acquaintance rape and college sexual assault. Research and activism made way for federal legislation including Title IX (1972), the Victims of Crime Act (1984), the Clery Act (1990), and the Violence Against Women Act (1994). Interestingly, the public's understanding of gender-based violence and victimization has shifted minimally since the 1970s, with continued controversy and confusion over forms of sexual violence such as marital rape, assault during intoxication, victimized men, and intimate partner violence (McMahon & Baker, 2011; Streng & Kamimura, 2015). However, with social media, the ubiquity of sexual violence has recently been brought to public light, and examples from the #MeToo movement and media attention of high-profile perpetrators suggest that public opinion of sexual violence is ever-changing (Palmer et al., 2021). Continued research is necessary to understand if and how contemporary events influence the field of sexual violence.

Sexual violence advocates and practitioners have shifted to a public health framework to understand sexual violence victimization (Ortiz, 2003). Common models from the field include the public health approach model, levels of prevention pyramid, the socioecological model, the life course model, and the health impact pyramid (Dills et al., 2016). Applying these and other frameworks to sexual violence has empowered victims and researchers to contextualize the issue in a greater scale, and therefore, to propose and implement prevention measures to reach a wider and larger audience (Banyard et al., 2005; Ortiz, 2003). By understanding victimization as a public

health issue, prevention efforts can utilize already-existing, evidence-based public health models to reduce and eliminate sexual violence.

1.2 Sexual violence is costly to individuals and society

The use of public health strategies is imperative, given the wide prevalence of sexual violence. Globally, the WHO estimates that one in three women experience gender-based violence (World Health Organization, 2021). Within the United States, more than one in three women and one in four men experience sexual violence in their lifetime (Centers for Disease Control and Prevention, 2021a). As of 2010, an estimated 18.3% of women experience an attempted or completed rape in their lifetime, amounting to 22 million individuals (Black et al., 2011); these estimates rose to 21.3% and 25.5 million by 2015 (Smith et al., 2018). On average, the lifetime cost of one instance of rape victimization is $122,461; at the population level, this amounts to a national cost of nearly $3.1 trillion annually (Centers for Disease Control and Prevention, 2021a). Clearly, sexual violence has far-reaching, detrimental impacts at a societal level.

For individuals, the immediate and chronic sequelae of sexual violence victimization are vast and varied. Effects can manifest physically, psychologically, and behaviorally - both acutely and chronically. In many cases, experiencing sexual violence diminishes aspects of one's quality of life. As a direct result of sexual violence, physical injuries such as bruising and bleeding can occur (Centers for Disease Control and Prevention, 2021a; Rape Abuse & Incest National Network, 2021a). Reproductive and sexual health outcomes include sexually transmitted infections, HIV, and unintended pregnancy (Rape Abuse & Incest National Network, 2021a; World Health Organization, 2021). Sexual violence victimization has been connected to other

long-term physical outcomes and disability, such as brain injury, cardiovascular risk, gastrointestinal disorders, and reproductive health dysfunction, among others (Black et al., 2011; Halstead et al., 2018). Negative mental health outcomes include post-traumatic stress disorder (PTSD), anxiety, depression, suicidal ideation, and sleep dysfunction (Centers for Disease Control and Prevention, 2021a; Rape Abuse & Incest National Network, 2021a). Combined, physical and psychological impacts of sexual violence victimization may disrupt behavioral health. Victims may have higher odds of partaking in high-risk behaviors, such as alcohol misuse, drug misuse, self-harm, risky sexual behaviors, and disordered eating, compared to non-victimized peers (Rape Abuse & Incest National Network, 2021a; World Health Organization, 2021). Victimization is also associated with education drop out, job loss and unemployment, and lost personal relationships (Halstead et al., 2017; Rape Abuse & Incest National Network, 2021a).

Risks are amplified considering that sexual violence is connected to other forms of violence through shared societal roots. Related forms of violence include child abuse, youth violence, firearm violence, intimate partner violence, suicidality, and elder abuse. Victims of sexual violence are at heightened risk of experiencing sexual violence again in their lifetime, known as revictimization. Those who have experienced sexual violence may be at increased risk of experiencing another form of violence, known as polyvictimization. Therefore, addressing sexual violence is one step to eliminating all forms of power-based and gender-based violence (Centers for Disease Control and Prevention, 2021b).

1.3 Racially marginalized populations are disproportionately impacted

As with other public health issues, a variety of sociodemographic, environmental, and social characteristics influence one's victimization risk and experiences. Racially marginalized populations are impacted by sexual violence at disparate rates and in different ways compared to the white majority. Although quantitative estimates of risk have been generated by largescale studies, an individual's risks of victimization cannot be neatly approximated.

1.3.1 Prevalence of sexual violence among racially marginalized people

The 2010 National Intimate Partner and Sexual Violence Survey (NISVS) report indicated that Black women, American Indian or Alaskan Native women, and multiracial women had higher lifetime prevalence of rape, compared to white women (Table 1). The same trends were reported for lifetime stalking prevalence among women. However, considering rape, physical violence, or stalking by an intimate partner, Black women (43.7%), American Indian or Alaskan Native women (46.0%), multiracial women (53.8%), and Hispanic women (37.1%) all reported higher lifetime prevalence compared to white women (34.6%) (Black et al., 2011). Despite this documented elevated risk, prevalence estimates of victimization in these populations may be under-representations of true rates of sexual violence – even more so that sexual violence is broadly underreported (Bryant-Davis et al., 2009; Tillman et al., 2010). While characterizing racial disparities in prevalence rates is important, contextualizing these inequities in theory and history is essential to eliminating sexual violence and its root causes.

Table 1: Lifetime prevalence of sexual violence by race/ethnicity, US women, NISVS 2010

Adapted from Black et al., 2011

	Hispanic	**Non-Hispanic**				
		Black	**White**	**A/PI**	**AI/AN**	**Multiracial**
Rape	14.6	22.0	18.8	*	26.9	33.5
Other sexual violence	36.1	41.0	47.6	29.5	49.0	58.0

Reported as weighted percentages.
Race/ethnicity was self-identified.
A/PI = Asian or Pacific Islander. AI/AN = American Indian or Alaskan Native
*Estimate not reported. Relative standard error >30% or cell size ≤ 20.

1.3.2 Intersections of gender and race

Intersectionality theory has been used widely to contextualize the occurrence of sexual violence against women of color, particularly Black women (Bryant-Davis et al., 2009; Crenshaw, 1991; Palmer et al., 2021; Wooten, 2017). In short, Crenshaw "consider[s] how the experiences of women of color are frequently the product of intersecting patterns of racism and sexism, and how these experiences tend not to be represented within discourses of either feminism or antiracism" (Crenshaw, 1991, pp. 1243–1244). In other words, *gendered racism* (Essed, 2001) results from interlocking structural oppressions from the cisheteropatriarchy and white supremacy that trickle into every level of society and subjugate individuals who are both "women *and* of color" (Crenshaw, 1991, p. 1244). Thus, sexual violence victimization among women of color can be understood a product of both racism and sexism (Essed, 2001).

1.3.3 Minority stress and historical roots of anti-Black racism in sexual violence victimization

The concept of minority stress has been used to help articulate the effects of external, social conditions on an individual's lived experiences (Meyer, 2003). Compared to individuals who hold dominant identities, those with marginalized identities are thought to experience excess stress because of "stigmatized social categories" and conflicts that arise between dominant culture and the experiences of a person with marginalized identities (Meyer, 2003, p. 3). Specifically, a minority stress framework can conceptualize how both sexism and anti-Black racism become a *distal* and *proximal* biopsychosocial health stressor over the life course (Clark et al., 1999). For example, the history of chattel slavery, anti-Black racism, and classism reinforces a number of stereotypical caricatures of Black women, including the Jezebel image, the Mammy, the Matriarch, the Welfare Queen, and the "Strong Black Woman" (Donovan & Williams, 2002; Tillman et al., 2010; Watson et al., 2012; Wooten, 2017). These legacies manifest as everyday occurrences of gendered racism through apparent and perceived microaggressions, discrimination, and structural violence against Black women. External stressors also "get under the skin;" internalized negative beliefs about race and gender become stressors and negatively impact Black women's perceptions of their experiences and worth (Clark et al., 1999; Jones, 2000; Swann et al., 2021). Thus, Black women experience and cope with chronic stigma and stress because of both external and internalized experiences due to both their Blackness and womanhood.

In context, minority stress can help explain how Black women cope with sexual violence victimization compared to white women (Swann et al., 2021). External effects of sexism and racism impact how Black women are believed and treated after victimization. For example, compared to white victims, Black victims tend to be hypersexualized and blamed more frequently

because of racist and sexist social biases and stigma (Lewis et al., 2019; Tillman et al., 2010). Internal effects of these stressors influence an individual's self-blame, coping strategies, and decisions to disclose (Bryant-Davis et al., 2009; Jones, 2000; Neville et al., 2004; Tillman et al., 2010). In sum, Black women's lifetime accumulation of stressors from racism and sexism, both from distal and proximal sources, negatively impact health outcomes and recovery after sexual violence victimization.

1.3.4 Incorporating intersectionality and history in public health practice

Importantly, Black women and other marginalized communities are commonly excluded from sexual violence advocacy and policy, and therefore, those most-vulnerable continue to be left without safety. In sexual violence public health practice, this exclusion leads to color-blind prevention efforts, intervention services that address violence in isolation of root causes, and legislation that prioritizes the criminal-legal system (Crenshaw, 1991; Wooten, 2017). An intersectional approach to sexual violence prevention demands that the interlocking role of gender and race oppressions, and the multilevel effects of discrimination, be recognized in research, policy, and practice. Public Health Critical Race praxis (PHCR) is a framework through which to characterize racial disparities in public health problems (Ford & Airhihenbuwa, 2010a, 2010b). Derived from Critical Race Theory, PHCR relies on race consciousness and the understanding of the explicit need to characterize race as a social and societal construct to name and address the root cause of racial disparities in public health and develop appropriate prevention strategies. In context, PHCR can be used to both describe disparities in sexual violence victimization and to develop effective prevention and intervention efforts that "center the margins" beyond traditional additive methods (Ford & Airhihenbuwa, 2010a, p. S31).

1.4 Young people consistently experience high rates of sexual violence

Youth and adolescents experience high rates of victimization. In 2007, the Campus Sexual Assault (CSA) study reported that almost 16% of undergraduate women reported experiencing sexual assault prior to college (Krebs et al., 2007); another study found 28% of women had experienced attempted or completed forcible or incapacitated rape before college (Carey et al., 2015). More recently and widely, the 2015 updated NISVS found that among women and girls who indicated any lifetime experience of rape, 43.2% reported their first rape was before age 18; 12.7% reported their first rape was at or before age 10 (Smith et al., 2018). Child sexual abuse is a well-known adverse childhood experience. Further, evidence shows victimization during adolescence and young adulthood increases odds for educational and socioeconomic disadvantage later in life (MacMillan & Hagan, 2004). Certainly, young people are a vulnerable group, and victimization in youth and adolescents before college can have lifelong consequences.

1.5 Sexual violence on college campuses is widespread

Within sexual violence research, many studies have been completed in college and university campus populations because in this setting, sexual violence is a significant public health concern. Once on campus, college students face elevated risks of sexual violence victimization compared to the general population (Dills et al., 2016). Recently, the 2019 Association of American Universities (AAU) Campus Climate Survey, found that among undergraduate students, an estimated 25.9% of women and 6.8% of men have experienced nonconsensual sexual contact (Cantor et al., 2020). Each year, an estimated 15% of women in college experience sexual violence

(Carey et al., 2015). Still, it is possible that these figures are still underestimations of the true prevalence of campus sexual violence because of low reporting and disclosure rates.

There is mixed prevalence data regarding racial disparities in sexual violence victimization on college campuses (Bonar et al., 2020; Zounlome et al., 2019). The 2019 AAU Survey found that, overall, Hispanic students (14.9%) reported higher rates of forcible rape or sexual assault compared to non-Hispanic students (12.8%), and by race, only American Indian or Alaskan Native reported higher (18.7%) prevalence than whites (14.7%) (Cantor et al., 2020). Specifically at the University of Pittsburgh, the 2019 AAU Survey found that a sample of Black students report higher rates of "Penetration or Sexual Touching Involving Physical Force or Inability to Consent or Stop What Was Happening" (19.9%), intimate partner violence (21.6%), and stalking (13.9%), compared to white students (15.8%, 11.7% and 7.9%, respectively) (Cantor et al., 2019). A variety of factors may contribute to these inconsistencies surrounding racial disparities in sexual violence victimization prevalence; however, more research is needed to determine causes and associations of disparities between and within racially marginalized groups.

In addition to endemic risk, every academic year, incoming students face the "Red Zone", the first months of fall semester where there is an increased risk for sexual violence victimization (Kimble et al., 2008). In fact, the 2007 CSA study found that greatest risk of sexual violence victimizations occurs during the first two years of undergraduate education (Krebs et al., 2007). This is thought to be for a variety of reasons, including immersion in unfamiliar social environments, exposure to alcohol and drugs, and absence of parental oversight (Bonar et al., 2020; Krebs et al., 2007). For example, fraternities and sororities (collectively, "Greek Life") are associated with sexual violence victimization, anecdotally and supported by literature (Bonar et al., 2020; Krebs et al., 2007). Additionally, research has repeatedly shown that exposure and use

of alcohol or drugs frequently co-occurs with sexual violence, especially on college campuses (Bonar et al., 2020; Cantor et al., 2020; Sabina & Ho, 2014). Thus, an individual's risk of sexual violence victimization changes depending on a complex combination of their social identities, social setting, and campus environment, further indicating the need for sexual violence education and prevention to reach everyone.

1.5.1 Colleges have resources for sexual violence prevention and response

To reduce and respond to sexual violence and its effects, college campuses have developed primary prevention measures for victims. In fact, the CDC published a technical package and framework to guide the development of prevention efforts (Dills et al., 2016).

Primary prevention includes teaching about sexual violence before it occurs. At the community level, this is accomplished through programs such as *Bring in the Bystander* (Banyard et al., 2005). These curricula are often provided to incoming students or to those who have elevated risk, such as first-year students and members of Greek Life. However, the empirical success of these programs is still under evaluation (DeGue et al., 2014). Other on-campus community prevention includes creating protective environments, such as adding emergency phones and night-time transportation services, increasing community awareness through public ads and campaigns. Additional methods include encouraging individuals to partake in protective behaviors, such as reducing alcohol and drug intake, avoiding risky situations, learning self-defense, and walking in groups (Banyard et al., 2005; Bonar et al., 2020; Garcia et al., 2012; McMahon & Stepleton, 2018). Although these multilevel prevention methods are implemented, sexual violence victimization remains prevalent, suggesting additional methods are necessary to fully address the issue and its root causes.

When sexual violence victimization occurs, campuses provide secondary and tertiary prevention programs to address immediate and long-term needs of sexual violence victimization. These resources may include crisis centers, hotlines, online resources, counseling services, medical care, law enforcement, peer supports, and Title IX proceedings, among others (Banyard et al., 2005; Cantor et al., 2020; Garcia et al., 2012; Sabina & Ho, 2014; Stoner & Cramer, 2019). Because these resources rely on trained institutional authority figures, they are considered "formal" help-seeking and disclosure resources. In contrast, informal disclosure involves those without institutional authority and not trained to response to victimization, including family, friends, and peers (Halstead et al., 2017; Sabina & Ho, 2014; Stoner & Cramer, 2019). From campus to campus, sexual violence prevention and response services are not standardized, impacting what resources exist and their quality, who is reached by resources, and by whom resources are utilized (Stoner & Cramer, 2019; Streng & Kamimura, 2015). Of note, an ongoing scoping review of literature had found that little to no primary, secondary, or tertiary prevention efforts have been specifically developed for racially marginalized college students, indicating a critical gap in current resources for sexual violence victimization prevention and response (BWA study, in-progress).

1.6 Students know campus sexual violence is a problem

Colleges' efforts to promote their prevention resources and programs may, in part, contribute to an increase in students' awareness of sexual violence as a public health issue (Cantor et al., 2020; Garcia et al., 2012; McMahon & Stepleton, 2018). Multiple sources indicate students know that campus sexual violence is a problem (Garcia et al., 2012; Muehlenhard et al., 2017; Walsh et al., 2010). For example, the 2019 AAU Survey found that about 37% of students felt

"very" or "extremely" knowledgeable about the definition of sexual assault. Overall, about 25% of students felt sexual assault was either "very" or "extremely problematic," with greater percentage of undergraduate women (44.8%) compared to undergraduate men (20.2%) endorsing this concern (Cantor et al., 2020). Racial differences in these perceptions were not reported. From 2015 to 2019, these statistics grew, suggesting that campus sexual violence education efforts are making a difference within student populations (Cantor et al., 2020). Importantly, campus sexual violence statistics may be misinterpreted by the general public (Muehlenhard et al., 2017). Therefore, clear and comprehensive messaging is essential to ensure students have correct understandings of the risk of sexual violence victimization. Further, more research is needed to determine factors that contribute to students' uptake of sexual violence prevention messaging.

1.7 Students have mixed knowledge about sexual violence victimization resources

Even with increased awareness of sexual violence as a problem, levels of knowledge about the existence of victimization resources vary (Cantor et al., 2020; Halstead et al., 2017; Sabina & Ho, 2014). For example, the 2019 AAU Survey found that, overall, 37.1% of students were "very" or "extremely" knowledgeable about where one could get help after victimization (Cantor et al., 2020). Two qualitative studies reported that interviewed students easily identified at least one campus resources for sexual violence victimization (Garcia et al., 2012; Tsui & Santamaria, 2015). On the contrary, Hayes-Smith & Levett (2010) reported that only 7% of students in the sample agreed with the statement, "I know where to go to receive help if I or someone I know were sexually assaulted at [the university]" (p. 342).

Sociodemographic differences may influence students' awareness of sexual violence services. Women may be more likely than men to know where to get help after victimization (Walsh et al., 2010), but this is not consistent across studies (Garcia et al., 2012; Hayes-Smith & Levett, 2010). Those with a history of victimization may also have greater knowledge about sexual violence services, compared to those without a history of victimization (Walsh et al., 2010), but it is unclear if that knowledge is associated with greater utilization (Halstead et al., 2017; Orchowski et al., 2009; Sabina & Ho, 2014). At present, essentially no publications ascertained racial differences in knowledge of sexual violence services, indicating a serious gap in current literature. However, overall, this inconsistency is unsurprising, given that campuses' prevention resources and messaging differ (Streng & Kamimura, 2015). Importantly, these reports indicate that many students across the country are not effectively nor equally reached by existing prevention and response programs.

Knowing about the existence of a resource is not synonymous with comprehensive knowledge of how to utilize the resource. Multiple studies found that, even if students could identify a resource, there was confusion about where these services were located, how these services could be used, and how disclosure processes worked (Halstead et al., 2017, 2018; Sabina & Ho, 2014). For example, in the study by Hayes-Smith & Levett (2010), 63% of students agreed with the statement, "I do not know enough about the sexual assault resources at [the university] to use them in a sexual assault situation." In another study, "less than half of students (46%) reported that they knew where the sexual assault center was located" (Walsh et al., 2010, p. 145). Even if the location is known, Halstead et al. (Halstead et al., 2018) found students may not think that resources are equipped to handle sexual violence victimization. Similarly, in one of the qualitative studies previously mentioned, when students were probed for more details about the campus

counseling center, “few knew details of services provided […], or where it was, or had considered using it” (Tsui & Santamaria, 2015, p. 520). These excerpts highlight the difference between students’ knowing about the existence of a resource versus understanding and inclination to access it.

Researchers have assessed if greater exposure to information about sexual violence and victimization resources closes this gap. Interestingly, the promotion of college prevention resources is positively associated with students’ knowledge and understandings of victimization services, but does not fully explain the low comprehensive awareness rates (Hayes-Smith & Levett, 2010; McMahon & Stepleton, 2018). Hayes-Smith & Levett (2010) found that students who remembered receiving information about campus sexual assault resources were able to identify a greater number of specific victimization resources available to students. McMahon & Stepleton (2018) reported that the level of exposure to messages about sexual violence was associated with awareness of campus resources for sexual assault. Therefore, exposure to information about sexual violence is beneficial, but not enough, to explain the gap between students’ understanding of sexual violence as a problem, knowledge of existing sexual violence resources, and comprehensive awareness of how to utilize services.

1.8 Student self-efficacy using sexual violence services is understudied

Self-efficacy is “a judgement individuals make about their ability to do the behavior” (Lawrance & McLeroy, 1986, p. 317). In short, it is a combination of knowing what to do, believing one can do it, knowing how to do it, and wanting to do it. Among other applications, self-efficacy has been used to describe why, when, and how individuals seek help for health issues

(Lawrance & McLeroy, 1986). After sexual violence victimization, then, self-efficacy may be one factor that influences help-seeking behaviors. Overall, little to no research has been conducted to directly measure how individual self-efficacy levels impacts help-seeking behaviors after sexual violence victimization.

As an extension, however, perceived self-efficacy could be indirectly assessed through hypothetical scenarios. Two review papers reported that when students were asked about hypothetical utilization of sexual violence services and victimization disclosure, rates were high (Sabina & Ho, 2014; Stoner & Cramer, 2019). For example, Nasta et al. (2005) found that 97% of students without victimization history indicated they would hypothetically utilize a campus support resource. Further, one study found that greater levels of perceived self-efficacy was associated with an increased likelihood of victimization disclosure (Orchowski et al., 2009). At first glance, perceived self-efficacy may be a reasonable proxy in place of directly measuring student self-efficacy of sexual violence resource utilization.

However, research suggests this is not the case. Violence victimization, "undermines perceptions of agency and self-efficacy" (MacMillan & Hagan, 2004, p. 131). In other words, an experience of sexual violence victimization has the potential to reduce self-efficacy levels and complicate factors, such that hypothesized utilization rates are inapplicable. This gap between perceived and practical self-efficacy has been described (Sabina & Ho, 2014; Stoner & Cramer, 2019). For example, in the Nasta et al. (2005) study previously mentioned, among students who experienced sexual violence, only 22% actually used any victimization resource. Thus, hypothetical scenarios may not provide accurate estimates for sexual violence service utilization after victimization. In sum, sexual violence victimization may decrease one's agency and self-efficacy, reducing the likelihood of help-seeking and service utilization, despite a victim's need

for professional help. As Stoner & Cramer (2019) write, "little remains known about help-seeking behaviors among victims of sexual violence victimization as they relate to the utilization of health-related services" (p. 521).

Importantly, self-efficacy among Black women may be influenced by the previously mentioned historical and societal influences, compared to white women. One study found that Black women, but not white women, consider cultural factors to be influential after rape victimization, which in turn, impact self-esteem and self-blame (Neville et al., 2004). However, self-esteem is a distinct but related concept to self-efficacy, so more research is necessary to determine how race and culture may impact self-efficacy after sexual violence victimization.

1.9 Student disclosure and utilization of sexual violence services is low

Across most studies, the majority of victims do not formally disclose (Table 2). For example, considering disclosure to any formal source, Stoner & Cramer (2019) found that anywhere from 5% to 48% of undergraduate rape victims reported. Associated with low disclosure rates, student utilization of sexual violence services is also low (<1% to 16.3%), despite the existence and promotion of prevention and response resources (Halstead et al., 2017). Literature has repeatedly shown rates of informal disclosure are higher than rates of formal disclosure (Halstead et al., 2017; Sabina & Ho, 2014; Stoner & Cramer, 2019), with rates of disclosure to family (5% to 31.9%) generally lower than rates of disclosure to friends (55% to 94.5%). In fact, in studies where students were asked if they had received a disclosure, an estimated 28.9% to 44.3% said yes. Finally, anywhere from 25% to 55% of victims do not disclose their victimization at all. Importantly, measurement varies study to study; however, these quantitative ranges support

anecdotal evidence (Halstead et al., 2017; Sabina & Ho, 2014; Stoner & Cramer, 2019). A variety of interconnected factors contribute to an individual's decision to utilize or not utilize services.

Table 2: Estimates of disclosure rates by review article

	Sabina & Ho (2014) (%)	**Halstead et al. (2017) (%)**	**Stoner & Cramer (2019) (%)**
Formal disclosure	0-15.8		5-48
Police	0-12.9	<1-15	
Any service utilization	20-52		0-42
Healthcare utilization		<1-16.3	12
Informal disclosure	41-100		32-88
Family/Relatives		5-31.9	
Friends		55-94.5	
Intimate partner		26-55.5	
No disclosure		25-55	
Rates of receiving disclosure		28.9-44.3	

1.9.1 Facilitators and barriers to formal disclosure and service utilization

Victims were more likely to disclose to a formal resource and to utilize health services if they believed their victimization was a crime or if they were physically injured during their experience (Stoner & Cramer, 2019). This suggests that long-held beliefs about what is "truly" considered sexual violence still exist. Informal reporting may be an important pathway to connect victims to formal resources. In fact, utilization was more frequent when informal disclosure resources (friends, family) encouraged the victim to seek help and provided beneficial social support throughout the process (Halstead et al., 2017; Stoner & Cramer, 2019). This finding further emphasizes the need for knowledge about sexual violence services to extend widely so that friends and family have the confidence to refer victims to professional help.

Victims choose to not disclose or utilize services for a variety of reasons. Commonly, one barrier is an individual's emotions such as shame, embarrassment, fear, denial, self-blame, and helplessness (Sabina & Ho, 2014; Stoner & Cramer, 2019). Victims may be concerned about

privacy, losing friends, or harming the perpetrator. They may be also uncertain if their experience was a crime, may believe the issue is "not serious," or may believe reporting the incident is futile (Halstead et al., 2017; Sabina & Ho, 2014; Sabri et al., 2019). Finally, features about the services themselves likely impact utilization; for example, one study found that the campus health center's location and hours were a barrier for students (Halstead 2018). Overall, facilitators and barriers to service utilization exist on multiple levels. Sabri et al. (2019) used the social-ecological model (SEM) to describe these barriers (Figure 1); this public health framework could also be used to reduce the barriers and promote facilitators to service utilization.

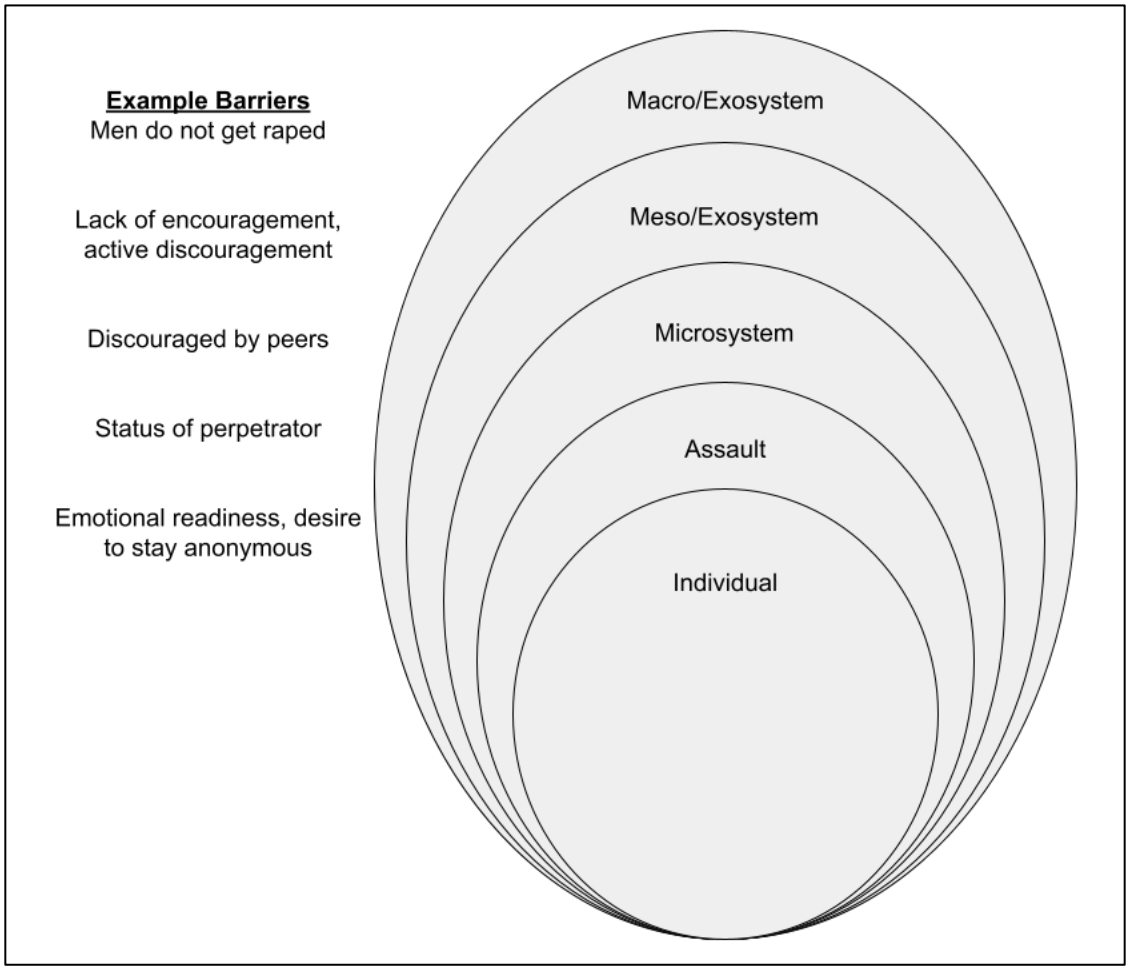

Figure 1: Barriers to sexual violence service utilization with the social-ecological model

Adapted from Sabri et al., 2019

1.9.2 Experiences and barriers are different for Black women

While Black women share some similar barriers to disclosure with white women, they also have unique challenges as a product of gendered racism. The same historical, systemic, and social barriers that influence Black women's rates of sexual violence impact how victimization of Black women is perceived from external sources (Donovan & Williams, 2002; Lewis et al., 2019; Tillman et al., 2010; Zounlome et al., 2019). For example, Lewis et al. (Lewis et al., 2019) conducted a vignette study with suggestive racial and gendered language to determine how college students' interpreted victim responsibility and need for social support. Using a hypothetical acquaintance rape scenario, the study found that if the perceived victim was African American or Latina, college students attributed more blame to the victim, justifying the assault because of the victim's assumed promiscuity. If the perceived victim was white, blame was attributed to the perpetrator (Lewis et al., 2019). Thus, Black women – even in hypothetical vignettes – "lack of status as 'ideal victims' [and] as legitimate […] victims of rape" (Wooten, 2017, p. 408). These finding support the contemporary impact of Jezebel stereotypes and hypersexualization on Black women who have experienced sexual violence victimization.

When considering the need for support after victimization, Black women are perceived to need less support than white women. From within the Black community, Black women who have experienced intraracial sexual violence may be pressured to remain silent in order to protect Black men from the criminal-legal system (Tillman et al., 2010; Zounlome et al., 2019). These association with strength, toughness, resiliency, and ultimately silence, may stem from the Matriarch and "Strong Black Woman" stereotypes (Donovan & Williams, 2002; Zounlome et al., 2019).

These external perceptions coexist and interact with internalized perceptions after an experience of sexual violence. Black women may be more likely to blame themselves (Neville et al., 2004) and less likely to seek help (Wooten, 2017) as a result of these stereotypical depictions of Black women. Additionally, Black women may distrust formal disclosure resources, such as police, the criminal-legal system, Title IX, and healthcare facilities, because of past negative experiences from institutional racial and gender discrimination (Tillman et al., 2010; Wooten, 2017). In particular, Black women at predominantly white institutions face additional challenges of navigating white-dominant spaces and victimization resources, including macro- and microaggressions and lack of racial mirrors (Tillman et al., 2010). In summary, "Black survivors may feel disempowered because of the invisibility of their trauma, and the (valid) skepticism they may have regarding administrative or law enforcement entities" (Zounlome et al., 2019, p. 891). Together, these forces manifest in an underutilization of sexual violence victimization resources among Black women.

1.10 Conceptual links between knowledge, self-efficacy, and use of sexual violence services

A simplified conceptual model to understand college students' knowledge, self-efficacy, and use of sexual violence services is proposed here (Figure 2). Drawing from intersectionality theory, minority stress framework, and the social-ecological model, the proposed model includes variables included in the analysis. As compared to white students, additional factors of consideration for students of color are highlighted with blue.

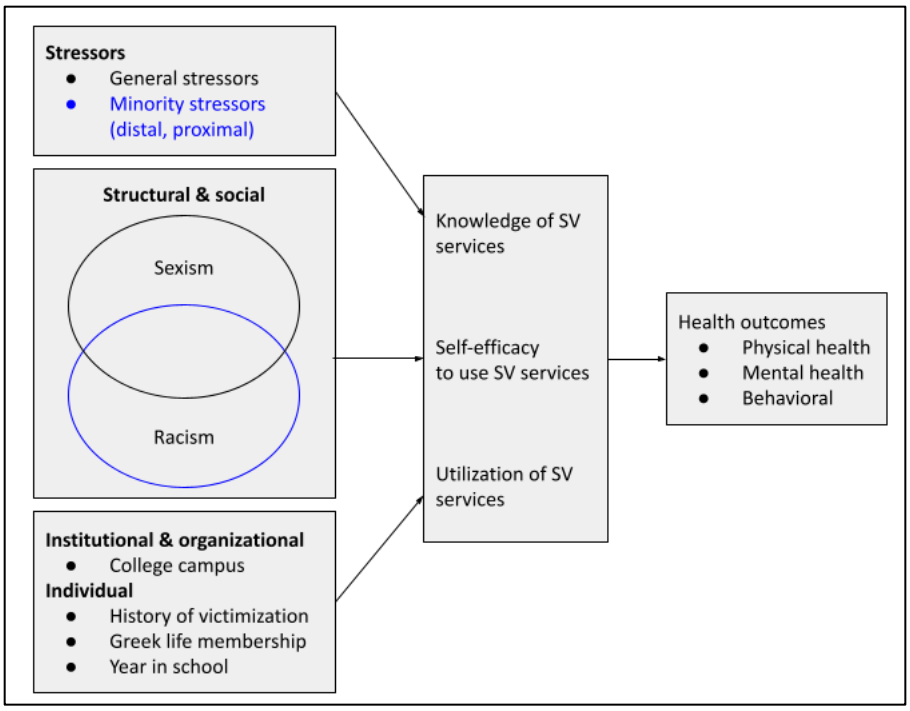

Figure 2: Proposed conceptual model of factors of interest and their influence on knowledge, self-efficacy, and use of sexual violence services

1.11 Gaps in literature

This review of literature has summarized existing knowledge about sexual violence as a public health problem, prevalence and resources on college campuses, student knowledge, self-efficacy, and use of sexual violence services, and disparities in experiences of racially marginalized individuals. Of note, most research surrounding racial disparities in sexual violence experiences compare white and Black samples, indicating a need for exploratory descriptions of how factors may differ between other racial and ethnic groups. There are many opportunities for continued research. These include understanding if and how race impacts knowledge of college

sexual violence services, if and how self-efficacy to utilize sexual violence resources differs by race, and racial differences in campus sexual violence utilization rates.

1.12 Public health significance

Clearly, sexual violence is a prevalent public health problem in the general population and on college campuses with negative consequences on individuals, communities, and society. The current body of literature is not sufficient to explain nor prevent sexual violence victimization on college campuses. Interactions between race and students' knowledge, self-efficacy, and use of sexual violence services remain largely unknown. For future research to elucidate causes of these interactions and for the development of effective sexual violence prevention strategies, disparities within these elements must first be identified.

1.13 Current study

The purpose of this study was to determine differences in college students' knowledge, self-efficacy, and use of sexual violence services by racial categorization using cross-sectional baseline data from the Giving Information for Trauma Support and Safety (GIFTSS) intervention study (Abebe et al., 2018; Miller et al., 2020). Based on previous research, we hypothesized that, in a sample of colleges in Pennsylvania and West Virginia within a four-hour radius of Pittsburgh, students of color who visit campus health, wellness, and counseling centers would have lower self-reported rates of knowledge, self-efficacy, and use of sexual violence services, compared to their

white counterparts. As an exploratory aim, we also sought to determine racial differences, using racial categorizations “white,” “Hispanic or Latino,” “Black or African American,” “Asian,” “Multiracial or other”, in these self-reported measures.

2.0 Methods

2.1 Study population and design

This is a secondary data analysis of the Giving Information for Trauma Support and Safety (GIFTSS) study. The goal of this study was to evaluate the outcomes of an intervention program (GIFTSS) designed to reduce risk of alcohol-related campus sexual violence. In short, "GIFTSS provides (a) patient education and assessment regarding sexual violence; (b) discussion of harm reduction behaviors to reduce risk of alcohol-related sexual violence for self and peers (including bystander intervention); and (c) supported referrals to victim services" (Abebe et al., 2018, p. 131). To test this program, a 2-arm, unblinded, randomized controlled trial was conducted. Campus health, wellness, and counseling centers (hereon collectively, Campus Health Centers, or CHCs) at 28 institutions in Western Pennsylvania and West Virginia participated between September 2015 and March 2018 (Abebe et al., 2018; Miller et al., 2020).

Detailed methods can be found elsewhere (Abebe et al., 2018). Campuses were stratified by size then randomized into the control or intervention group (Table 3). Individual students ages 18-24, literate in English, seeking care at their CHC, and with time before their appointment to complete a baseline survey were recruited when they visited a participating CHC. All students completed an online survey at baseline before and after meeting with the clinician. Follow up surveys were administered at 4 months and 12 months by emailing and texting links to participating students (Figure 3). Initial results from this study have been reported (Abebe et al., 2018; Miller et al., 2020). Twenty-eight CHCs participated with 16 randomized to the control and 12 to the intervention. A total of 2291 students completed baseline surveys: 1,040 in the

intervention and 1,251 in the control. Of those who reported sexual violence at baseline, almost 35% indicated the "perpetrator took advantage of them when they were unable to consent because of alcohol or drugs," providing further evidence of the co-occurrence of alcohol and substance use with sexual violence (Miller et al., 2020, p. 103). Overall, "no differences in intervention effects emerged comparing GIFTSS with an alcohol-focused intervention" (Miller et al., 2020, p. 104). However, these findings may have been influenced by site implementation of GIFTSS, which varied from 17% to 93%. Post-hoc analysis indicated that among sites where GIFTSS was properly disseminated, "self-efficacy to use harm reduction strategies was greater among intervention participants compared with controls" (Miller et al., 2020, p. 104).

Table 3: Comparison of control and intervention groups of GIFTSS study

Adapted from Abebe et al., 2018

	Control	**Intervention (GIFTSS)**
Focus of counseling	Alcohol risk reduction	Alcohol-related campus sexual violence and harm reduction
Physical tools provided to students	Palm-size card about responsible alcohol consumption titled "Read Before Drinking."	Palm-size safety card with information about SV and harm reduction
Trainings for sites	3 hour training led by a local alcohol abuse prevention expert on screening and brief intervention using recommendations from the NIAAA	3 training led by a local SV victim service agency, together with the PI, in the use of the card

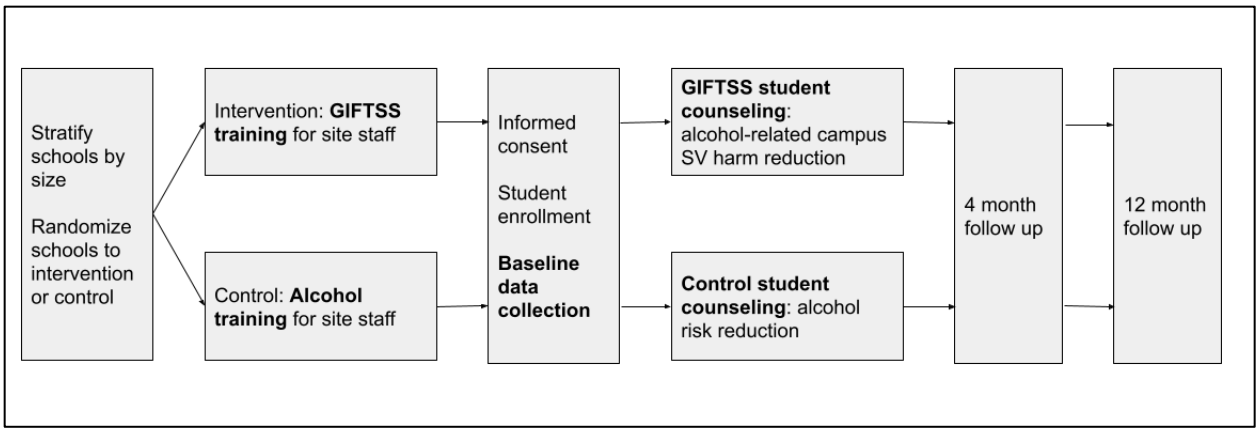

Figure 3: GIFTSS randomized control trial design

Adapted from Abebe et al., 2018

2.2 Current project

The current study uses a cross-sectional analysis of data from baseline surveys prior to clinician contact. As part of the baseline data collection, students self-reported a variety of demographics, including race, ethnicity, age, gender, Greek life membership, and year in school (Abebe et al., 2018). Students were asked about their knowledge of sexual violence related services, their self-efficacy to use sexual violence related services, and their use of sexual violence services (Table 4, Abebe et al., 2018). Knowledge of sexual violence services was assessed by asking "if they knew about 5 sexual violence resources" (Abebe et al., 2018, p. 133). Self-efficacy to use sexual violence services was assessed by a five-point Likert scale of five items; "a higher mean score indicates greater likelihood to use those resources" (Abebe et al., 2018, p. 133). Additionally, participants were asked if they have used any of five sexual violence resources in the past four months (Abebe et al., 2018).

Table 4: Questions asked to assess knowledge, self-efficacy, and use of sexual violence services

Adapted from Abebe et al., 2018

Outcomes of interest	**Survey questions**
Knowledge of SV services Yes or no Summary score Higher score indicates greater knowledge	1. Did you know about the National Sexual Assault Hotline (1−800-656-HOPE and www.rainn.org)? 2. Did you know you can talk to the doctors, nurses, counselors, and staff at your college health clinic about sexual assault? 3. Did you know that there are on-campus sexual assault experts that you can talk to? 4. Did you know that there are off-campus sexual assault experts that you can talk to? 5. Did you know that after an unwanted sexual experience you can get treated for potential STD exposure? 6. Did you know that after an unwanted sexual experience you can take emergency contraception (EC)?
Self-efficacy to use SV services 5 point Likert scale 1 = "very unlikely" 5 = "very likely" Averaged score Higher score indicates greater self-efficacy	How likely would you be to: 1. Use the National Sexual Assault Hotline (1−800-656-HOPE and www.rainn.org) if you needed information or help related to sexual assault? 2. Talk to the doctors, nurses, counselors, and staff at your college health clinic if you needed information or help related to sexual assault? 3. Contact an on-campus sexual assault expert if you needed information or help related to sexual assault? 4. Contact an off-campus sexual assault expert if you needed information or help related to sexual assault? 5. Seek medical treatment for potential STD exposure if you had an unwanted sexual experience? 6. Seek out emergency contraception for pregnancy prevention if you had an unwanted sexual experience?
Use of SV services Yes or no Summary score	In the past 4 months, have you: 1. Called the National Sexual Assault Hotline or visited their website? 2. Talked to the doctors, nurses, counselors, and staff at your college health clinic about sexual assault? 3. Talked to an on-campus sexual assault expert? 4. Talked to an off-campus sexual assault expert? 5. Been treated for potential STD exposure after an unwanted sexual experience? 6. [females only] Taken emergency contraception (EC) after an unwanted sexual experiences

2.3 Variables of interest

2.3.1 Outcomes

Sexual violence summary scores were created using the five questions asked to all participants. Students' knowledge of sexual violence services was assessed by asking students if they knew about five existing services. If students responded "Yes" a point was added to the summary score. Summary scores ranged from 0 to 5, with 0 indicating that a student reported not knowing any of the services listed, and 5 indicating a student reported knowing all the services listed (Abebe et al., 2018).

Students' self-efficacy to use sexual violence services was assessed with a Likert scale that asked students how likely they were to use five existing sexual violence services. For each question, a response of 1 indicated "Very unlikely" and a score of 5 indicated "Very likely." To create the summary score for self-efficacy, responses were averaged. Self-efficacy scores ranged from 1 to 5, with a higher average score indicating a greater likelihood to use services (Abebe et al., 2018).

Use of sexual violence services was assessed by asking students if they had used any of five sexual violence services in the past four months. If students responded "Yes" a point was added to the summary score (Abebe et al., 2018). Distribution of the summary score indicated that most students utilized zero resources. Therefore, use of sexual violence services was dichotomized into "no use" for those who reported using zero resources, or "any use" for those who reported using one or more resources.

2.3.2 Predictors

Racial categories were dichotomized into “white” and “other races/students of color” for the primary analysis. Categories “non-Hispanic white,” “non-Hispanic Black,” “Hispanic,” “Asian,” and “Other” were used for the exploratory analysis. “Other” aggregated Native Hawaiian Pacific Islander, American Indian Alaskan Native, Multiracial, and Other for this analysis due to small sample sizes within these groups. Gender was coded into two categories: cisgender woman, cisgender man. The category “other gender” had 32 observations which were dropped from analysis due to the small sample size and the known relationship between gender identity and campus sexual violence victimization (Coulter et al., 2017).

Students’ year in school was recorded as first, second, third, fourth-, or fifth-year undergraduate; graduate or professional school; or other. Due to small sample sizes within categories, data were recoded into five categories: first year undergraduate, second year undergraduate, third year undergraduate, fourth- or fifth-year undergraduate, and other. Membership to Greek life was assessed dichotomously as “yes” or “no” with one question. History of sexual violence before and since college was assessed with 7 questions each, which was reported as a dichotomous predictor. If a student answered “yes” to any of the questions at baseline, they were categorized as having “any history of sexual violence.” If a student responded no to all questions at baseline, they were categorized as having “no history of sexual violence” (Abebe et al., 2018)

2.4 Statistical analyses

SAS® version 9.4 (Cary, NC) software was used to complete analyses. For all tests, alpha was set to 0.05. Descriptive statistics including means (SD) and frequencies (%) were generated for the full sample and by race categorization (white vs. other races). Between the groups "white students" and "other races", differences in the predictors and outcomes were tested. Within gender descriptive characteristics were described between "white" and "other races" groups, given known interactions between race and gender. Predictors and outcomes were compared between those with and without histories of sexual violence at baseline. For each of these comparisons, Chi-square tests were used to determine differences between categorical variables, and t-tests were used to determine differences between continuous variables.

Additionally, descriptive statistics and comparisons for each racial and ethnic group were generated to disaggregate the broad category "Other races." Chi-square tests were used to determine overall differences between categorical variables. For 2xc tables with statistical significance, post-hoc pairwise comparisons were conducted with the COMPROP macro in SAS (Elliot & Reisch, 2006). ANOVA was used to compare continuous variables with Tukey post-hoc comparisons.

2.4.1 Unadjusted regression models

Associations between predictors and outcomes were assessed with unadjusted regression models. Knowledge of sexual violence services was treated as a count; Poisson regression models were used, and results reported as incidence rate ratio (IRR) and 95% Confidence Interval (95% CI). Self-efficacy to use sexual services was treated as a continuous variable; linear regression was

used, and results were reported as the beta coefficient and 95% CI. Use of sexual violence services was treated as a dichotomous outcome; logistics regression was used with results reported as odds ratio (OR) and 95% CI (Abebe et al., 2018; Miller et al., 2020)

3.0 Results

There were 2259 participants included in the final analysis (Table 5). The average age was 20 years old, the majority (67.8%) of participants were non-Hispanic white, and the majority (73.3%) were cisgender women. Fifty-seven percent of the overall sample reported a history of sexual violence prior to college. Between the white and other races groups, there were significant differences in gender, year in school, and Greek life membership. A larger proportion of the sample was cisgender women in the white group (76.0%) compared to the other races group (67.5%, $p<0.0001$). The other races sample tended to be in earlier years of school compared to the white sample. More of the white sample participated in Greek Life (17.83%) compared to the other races sample (14.5%, $p=0.0471$). Importantly, there were no differences in age or history of victimization by white and other races categorization.

Table 5: Baseline characteristsics of GIFTSS study sample by overall, white, and other races sample

	Overall (n=2259)	**White (n=1526)**	**Other races (n=725)**	**p-value**
Age – Mean (SD)	20.06 (1.55)	20.09 (1.50)	20.00 (1.64)	0.2408
Race/ethnicity				
Non-Hispanic white	1526 (67.79)	1526 (100)	0 (0)	-
Non-Hispanic Black	216 (9.60)	0 (0)	216 (29.79)	
Hispanic or Latino	308 (13.68)	0 (0)	308 (42.48)	
Asian	121 (5.38)	0 (0)	121 (16.69)	
Other	80 (3.55)	0 (0)	80 (11.03)	
Gender				**<0.0001**
Cisgender women	1653 (73.27)	1160 (76.02)	492 (67.49)	
Cisgender men	603 (26.73)	366 (23.98)	237 (32.51)	
Year in school				**0.0082**
1st year undergraduate	607 (27.06)	390 (25.73)	217 (29.89)	
2nd year undergraduate	566 (25.23)	377 (24.87)	188 (25.90)	
3rd year undergraduate	467 (20.82)	342 (22.56)	125 (17.22)	

4th and 5th year undergraduate	445 (19.84)	310 (20.45)	135 (18.60)	
Other	158 (7.04)	97 (6.40)	61 (8.40)	
Greek life membership				**0.0471**
Yes	377 (16.79)	271 (17.83)	105 (14.48)	
No	1869 (83.21)	1249 (82.17)	620 (85.52)	
History of SV at baseline				0.2810
Any history	1281 (56.83)	876 (57.59)	404 (55.19)	
No history	973 (43.17)	645 (42.41)	328 (44.81)	
n (%) unless otherwise indicated **Bold** indicates statistical significance (p<0.05)				

On average, students reported knowing 3.64 of 5 services listed. The average Likert self-efficacy to use services was 3.39 of 5. Of those who reported victimization at baseline, 13.9% reported using any service. Significant differences between the white students and students of all other races were found for outcomes in the full sample (Table 6). On average, students of color generally reported knowing fewer sexual violence services (3.53) compared to white students (3.69, p=0.0201). However, students of color reported higher self-efficacy to use sexual violence services (3.45) compared to white students (3.36, p=0.0489). Overall, more students of color (11.9%) reported use of sexual violence services, compared to white students (8.7%, p=0.0174). However, among those with a history of victimization at baseline, there were no differences by racial categorization in use of sexual violence services.

Table 6: Outcomes of GIFTSS study sample by overall, white, and other races sample

Outcome	Overall	White	Other races	p-value
Knowledge of SV services – mean (SD)	3.64 (1.48)	3.69 (1.43)	3.53 (1.58)	**0.0201**
Self-efficacy to use SV services – mean (SD)	3.39 (1.03)	3.36 (1.01)	3.45 (1.06)	**0.0489**
Use of SV services				**0.0174**
Any use	221 (9.78)	133 (8.72)	87 (11.89)	
No use	2038 (90.22)	1393 (91.28)	645 (88.11)	

Use among those with history of SV at baseline (n=1281)				0.0775
Any use	178 (13.90)	111 (12.67)	66 (16.34)	
No use	1103 (86.10)	765 (87.33)	338 (83.66)	
n (%) unless otherwise indicated **Bold** indicates statistical significance (p<0.05)				

Next, we assessed differences in baseline characteristics and sexual violence outcomes by gender (Table 7). No differences in characteristics were observed by age, year in school, or Greek life membership. A greater percentage of women (65.3%) than men (33.3%) reported a history of sexual violence at baseline (p<0.0001). Cisgender women reported greater average knowledge of sexual violence services (3.69) compared to cisgender men (3.49, p=0.0088). Additionally, cisgender women reported greater self-efficacy to use services (3.51) than cisgender men (3.07, p<0.0001). In the full sample, use of sexual violence services did not differ by gender; however, when restricted to those with a history of victimization at baseline, a greater proportion of cisgender men (18.5%) compared to cisgender women (12.8%) reported service use (p=0.0313).

Table 7: Characteristics and outcomes of GIFTSS sample by gender

	Cisgender women (n=1653)	**Cisgender men (n=603)**	**p-value**
Age – Mean (SD)	20.04 (1.52)	20.10 (1.61)	0.4258
Year in school			0.3383
1st year undergraduate	433 (26.35)	174 (29.00)	
2nd year undergraduate	421 (25.62)	145 (24.17)	
3rd year undergraduate	353 (21.49)	114 (19.00)	
4th and 5th year undergraduate	316 (19.23)	129 (21.50)	
Other	120 (7.30)	38 (6.33)	
Greek life membership			0.7704
Yes	274 (16.65)	103 (17.17)	
No	1372 (83.35)	497 (82.83)	
History of SV at baseline			**<0.0001**
Any history	1078 (65.29)	200 (33.33)	
No history	573 (34.71)	400 (66.67)	

Knowledge of SV services – mean (SD)	3.69 (1.41)	3.49 (1.64)	**0.0088**
Self-efficacy to use SV services – mean (SD)	3.51 (0.98)	3.07 (1.08)	**<0.0001**
Use of SV services			0.5480
Any use	156 (9.44)	62 (10.28)	
No use	1497 (90.56)	541 (89.72)	
Use among those with history of SV at baseline (n=1281)			**0.0313**
Any use	138 (12.80)	37 (18.50)	
No use	940 (87.20)	163 (81.50)	
n (%) unless otherwise indicated **Bold** indicates statistical significance (p<0.05)			

We also compared differences in baseline characteristics and sexual violence outcomes of interest by racial categorization within the sample of women and the sample of men (Table 8). Between white women and women of color, more white women (18.3%) than women of color (12.7%) participating in Greek life (p=0.0051). No other statistically significant differences in outcomes were found between white women and women of color. Between white men and men of color, there was a statistically significant difference in year in school, with a larger proportion of the men of color being in earlier years of school. Men of color had a higher mean self-efficacy score (3.21) compared to white men (2.97, p=0.0085). A quarter (25.0%) of men of color with a history of victimization reported utilization of services, compared to 14.8% of white men, although this did not reach statistical significance.

Table 8: Within-gender comparisons of characteristics and outcomes of GIFTSS sample

	Cisgender women (n=1652)			Cisgender men (n=603)		
	White (n=1160)	**Other races (n=492)**	**p-value**	**White (n=366)**	**Other races (n=237)**	**p-value**
Age – mean (SD)	20.09 (1.48)	19.94 (1.62)	0.0840	20.08 (1.55)	20.13 (1.69)	0.7290
Year in school			0.0881			**0.0282**
1st year	289 (25.11)	144 (29.33)		101 (27.67)	73 (31.06)	
2nd year	289 (25.11)	131 (26.68)		88 (24.11)	57 (24.26)	
3rd year	267 (23.20)	86 (17.52)		75 (20.55)	39 (16.60)	
4th and 5th year	224 (19.46)	92 (18.74)		86 (23.56)	43 (18.30)	
Other	82 (7.12)	38 (7.74)		15 (4.11)	23 (9.79)	
Greek Life			**0.0051**			0.5555
Yes	211 (18.27)	62 (12.65)		60 (16.44)	43 (18.30)	
No	944 (81.73)	428 (87.35)		305 (83.56)	192 (81.70)	
History SV before college			0.3744			0.2149
Yes	748 (64.59)	329 (66.87)		128 (35.26)	72 (30.38)	
No	410 (35.41)	163 (33.13		235 (64.74)	165 (69.62)	
Knowledge of SV services – mean (SD)	3.72 (1.37)	3.61 (1.50)	0.1385	3.58 (1.57)	3.35 (1.72)	0.0989
Self-efficacy to use SV service – mean (SD)	3.48 (0.97)	3.57 (1.03)	0.1176	2.97 (1.07)	3.21 (1.08)	**0.0085**
Use of SV services			0.1030			0.2035
Any use	100 (8.62)	55 (11.18)		33 (9.02)	29 (12.24)	
No use	1060 (91.38)	437 (88.82)		333 (90.98)	208 (87.76)	
Among those with history of SV			0.5318			0.0758
Any use	92 (12.30)	45 (13.68)		19 (14.84)	18 (25.00)	
No use	656 (87.70)	284 (86.32)		109 (85.16)	54 (75.00)	

n (%) unless otherwise indicated

Bold indicates statistical significance ($p<0.05$)

Baseline characteristics and sexual violence outcomes of interest were compared between those with and without histories of sexual violence at baseline (Table 9). Women comprised of 84% of the sample who reported a history of sexual violence, compared to 59% of the sample without a history of sexual violence ($p<0.0001$). Those with a history of victimization at baseline were slightly older (20.12 years) than those without (19.98, $p=0.0449$). A greater proportion of those with a history of victimization were members of Greek life (18.6%) compared to those with no victimization history (14.5%, $p=0.0103$). No differences in knowledge of sexual violence services were reported. The mean self-efficacy score was higher (3.48) among those with a history of sexual violence before college, compared to those without history (3.27, $p<0.0001$). Over 13% of those with a history of victimization before college reported utilization of service, compared to less than 5% of those without ($p<0.0001$).

Table 9: Characteristics of GIFTSS sample by history of victimization at baseline

	No history of SV at baseline	**History of SV at baseline**	**p-value**
Age – Mean (SD)	19.98 (1.55)	20.12 (1.54)	**0.0449**
Gender			
Cisgender women	573 (58.89)	1078 (84.35)	**<0.0001**
Cisgender men	400 (41.11)	200 (15.65)	
Year in school			0.3238
1st year undergraduate	279 (28.70)	325 (25.67)	
2nd year undergraduate	253 (26.03)	312 (24.64)	
3rd year undergraduate	193 (19.86)	274 (21.64)	
4th and 5th year undergraduate	184 (18.93)	260 (20.54)	
Other	63 (6.48)	95 (7.50)	
Greek life membership			**0.0103**
Yes	141 (14.51)	236 (18.60)	
No	831 (85.49)	1033 (81.40)	
Knowledge of SV services - Mean (SD)	3.62 (1.54)	3.65 (1.43)	0.5606
Self-efficacy to use SV services – Mean (SD)	3.27 (1.10)	3.48 (0.96)	**<0.0001**
Use of SV services			**<0.0001**
Any use	43 (4.42)	178 (13.90)	

No use	930 (95.58)	1103 (86.10)	
n (%) unless otherwise indicated **Bold** indicates statistical significance ($p<0.05$)			

Racial and ethnic differences were described for predictors and outcomes (Table 10). Differences in age, gender, and year in school were statistically significant. A post-hoc Tukey test indicated the Asian group was significantly older (20.36 years) than the Other racial group (19.73 years) with no other pair-wise significant differences. A post-hoc, pairwise comparison of the differences in gender distribution found a significantly greater proportion of the white sample was women (76.02%) compared to the Black (63.89%) and Hispanic (67.21%) samples. Overall, statistically significant differences in year in school were present by racial group ($p<0.0001$). No differences were found by Greek life membership. There were also no differences in history of victimization at baseline by racial group.

Statistically significant differences in knowledge of sexual violence services and utilization of services were indicated. Knowledge of sexual violence services was statistically different by racial group ($p=0.0006$), with Asians (3.12) reporting significantly lower average scores of knowledge than white (3.69), Hispanic (3.57) and Other (3.88) counterparts. A post-hoc, pairwise comparison of use of sexual violence services indicate more Black students reported using services (15.74%) compared to white students (8.72%) and Hispanic students (8.44%). This difference was statistically significant among those with a history of victimization ($p=0.0426$), with a pair-wise difference between use among Black students (21.7%) and Hispanic students (10.4%). Statistically significant differences in average self-efficacy were not observed.

Table 10: Differences in characteristics and outcomes by racial and ethnic group

	White (n=1526)	**Black (n=216)**	**Hispanic (n=308)**	**Asian (n=121)**	**Other (n=80)**	**P-value**
Age – Mean (SD)	20.09 (1.50)	19.93 (1.51)	19.96 (1.63)	20.36 (1.93)	19.73 (1.47)	**0.0243**
Gender						**0.0002**
Cisgender women	1160 (76.02)	138 (63.89)	207 (67.21)	85 (70.25)	60 (75.00)	
Cisgender men	366 (23.98)	78 (36.11)	101 (32.79)	36 (29.75)	20 (25.00)	
Year in school						**<0.0001**
1st year undergraduate	390 (25.73)	57 (26.64)	103 (33.55)	30 (24.79)	27 (33.75)	
2nd year undergraduate	377 (24.87)	73 (34.11)	67 (21.82)	27 (22.31)	20 (25.00)	
3rd year undergraduate	342 (22.56)	35 (16.36)	54 (17.59)	17 (14.05)	17 (21.25)	
4th and 5th year undergraduate	310 (20.45)	38 (17.76)	61 (19.87)	23 (19.01)	12 (15.00)	
Other	97 (6.40)	11 (5.14)	22 (7.17)	24 (19.83)	4 (5.00)	
Greek life membership						0.2330
Yes	271 (17.83)	28 (13.15)	48 (15.64)	18 (14.88)	9 (11.25)	
No	1249 (82.17)	185 (86.85)	259 (84.36)	103 (85.12)	71 (88.75)	
History of SV before college						0.3280
Any history	876 (57.59)	115 (53.24)	173 (56.17)	61 (50.41)	50 (62.50)	
No history	645 (42.41)	101 (46.76)	135 (43.83)	60 (49.59)	30 (37.50)	
Knowledge of SV services - Mean (SD)	3.69 (1.43)	3.57 (1.65)	3.57 (1.56)	3.12 (1.57)	3.88 (1.42)	**0.0006**
Self-efficacy to use SV services - Mean (SD)	3.36 (1.01)	3.53 (1.07)	3.35 (1.05)	3.49 (1.05)	3.56 (1.05)	0.0589
Use of SV services						**0.0121**
Any use	133 (8.72)	34 (15.74)	26 (8.44)	12 (9.92)	11 (13.75)	
No use	1393 (91.28)	182 (84.26)	282 (91.56)	109 (90.08)	69 (86.25)	
Use among those with history of SV at baseline						**0.0426**

Any use	111 (12.67)	25 (21.74)	18 (10.40)	10 (16.39)	9 (18.00)	
No use	765 (87.33)	90 (78.26)	155 (89.60)	51 (83.61)	41 (82.00)	
n (%) unless otherwise indicated **Bold** indicates statistical significance ($p<0.05$) from Chi-square test or ANOVA						

Estimates from unadjusted Poisson regression models for knowledge of sexual violence services indicated race, gender, and Greek life membership were statistically significant (Table 11). Asian students reported lower rates of knowledge of sexual violence services (IRR = 0.85, 95% CI = 0.76, 0.94) compared to white students. Cisgender women were more likely than cisgender men to know about sexual violence services (IRR = 1.06, 95% CI = 1.01, 1.11). Membership to Greek life was associated with slightly greater rates of knowledge of SV services (IRR = 1.06, 95% CI = 1.00, 1.13).

Unadjusted linear regression models for self-efficacy to use sexual violence services found that race, gender, age, and history of sexual violence produced statistically significant coefficients (Table 11). Compared to being white, other race categorization was associated with higher self-efficacy to use SV services and greater odds of service utilization. Being a student of color was associated with a 0.09 greater mean self-efficacy score (95% CI = 0.0004, 0.18). Compared to white students, Black students reported higher self-efficacy to use services (β = 0.17, 95% CI = 0.02, 0.32). Cisgender women reported higher average self-efficacy to use services (β = 0.44, 95% CI = 0.35, 0.54). Age was associated with greater self-efficacy to use services (β =0.03, 95% CI = 0.002, 0.06). History of victimization was associated with greater self-efficacy to use services (β = 0.22, 95% CI = 0.13, 0.30)

For overall use of sexual violence services, unadjusted logistic regression showed race and history of sexual violence were significant predictors; among those with a history of victimization at baseline, race and gender were statistically significant predictors (Table 11). Among all student of color, the odds of use of sexual violence services were 41% higher than odds of use among white students. Compared to white students, Black students reported overall higher use of services (OR=1.96, 95% CI = 1.30, 2.94). History of victimization was associated with greater odds of

service use (OR = 3.49, 95% CI = 2.47, 4.92), compared to no history of victimization. Among those with victimization history at baseline, Black students reported higher use of services compared to white students (OR=1.91, 95% CI = 1.18, 3.11). Women were less likely to use services (OR = 0.65, 95% CI = 0.43, 0.96) compared to men.

Table 11: Unadjusted regression models for knowledge, self-efficacy, and use of sexual violence services

	Knowledge of SV services (IRR, 95% CI)	**Self-efficacy to use SV services (β, 95% CI)**	**Use of SV services (OR, 95% CI)**	**Use among those with history of SV at baseline (OR, 95% CI)**
Age	1.00 (0.99, 1.01)	**0.03 (0.002, 0.06)**	1.09 (0.99, 1.19)	1.06 (0.96, 1.18)
White / All other races				
White	Ref	Ref	Ref	Ref
Other races	0.96 (0.91, 1.00)	**0.09 (0.0004, 0.18)**	**1.41 (1.06, 1.88)**	1.35 (0.97, 1.87)
Race / Ethnicity				
White	Ref	Ref	Ref	Ref
Black	0.97 (0.90, 1.04)	**0.17 (0.02, 0.32)**	**1.96 (1.30, 2.94)**	**1.91 (1.18, 3.11)**
Hispanic	0.97 (0.91, 1.03)	-0.008 (-0.14, 0.12)	0.97 (0.62, 1.50)	0.80 (0.47, 1.36)
Asian	**0.85 (0.76, 0.94)**	0.13 (-0.06, 0.33)	1.15 (0.62, 2.15)	1.35 (0.67, 2.74)
Other	1.05 (0.94, 1.18)	0.20 (-0.03, 0.44)	1.67 (0.86, 3.23)	1.51 (0.72, 3.20)
Gender				
Cisgender men	Ref	Ref	Ref	Ref
Cisgender women	**1.06 (1.01, 1.11)**	**0.44 (0.35, 0.54)**	0.91 (0.67, 1.24)	**0.65 (0.43, 0.96)**
Year in school				
1st year undergraduate	Ref	Ref	Ref	Ref
2nd year undergraduate	0.99 (0.93, 1.05)	0.07 (-0.05, 0.19)	1.64 (1.08, 2.48)	1.50 (0.94, 2.37)
3rd year undergraduate	1.04 (0.98, 1.11)	0.09 (-0.03, 0.22)	1.33 (0.85, 2.09)	1.02 (0.62, 1.71)
4th and 5th year undergraduate	1.05 (0.99, 1.12)	0.07 (-0.05, 0.20)	1.71 (1.11, 2.64)	1.29 (0.79, 2.11)
Other	0.95 (0.86, 1.04)	0.18 (-0.0008, 0.36)	1.45 (0.78, 2.69)	1.16 (0.58, 2.33)
Greek Life				
No	Ref	Ref	Ref	Ref
Yes	**1.06 (1.01, 1.13)**	-0.09 (-0.21, 0.02)	1.32 (0.93, 1.89)	1.04 (0.69, 1.58)
History of SV				
No	Ref	Ref	Ref	-

Yes	1.01 (0.97, 1.06)	**0.22 (0.13, 0.30)**	**3.49 (2.47, 4.92)**	-
IRR = Incidence rate ratio from Poisson regression; CI = Confidence interval; OR = Unadjusted odd ratio from logistic regression **Bold** indicates statistical significance ($p<0.05$)				

4.0 Discussion

The purpose of this study was to determine differences college students' knowledge, self-efficacy, and use of sexual violence services by racial categorization using baseline data from the Giving Information for Trauma Support and Safety (GIFTSS) intervention study. We hypothesized that students of color would have lower self-reported rates of knowledge, self-efficacy, and use of sexual violence services, compared to their white counterparts. Results indicate that hypotheses were partially supported. Knowledge of sexual violence services among students of color was lower than among white students, and trends appear to be driven by low knowledge of sexual violence services among Asian students. However, students of color reported higher average self-efficacy to use sexual violence services, and specifically, Black race was associated with a higher self-efficacy score. Further, students of color reported higher rates of service utilization, and Black students reported particularly greater odds of service use compared to white students. These findings did not support hypotheses of differences by race. Each of these findings are discussed below.

4.1 Racial differences in knowledge, self-efficacy, and use of sexual violence services

Students of color reported lower levels of knowledge of sexual violence services, compared to white students (Table 6). Specifically, this difference may have been driven by the sample of Asian students who reported significantly lower knowledge compared to all other racial ethnic groups (Table 10). Results from unadjusted Poisson regression indicated that, in fact, level of

knowledge among the Asian group was 0.85 times as high as among the white group (Table 11). All other racial groups were not statistically different from the white group. Although knowledge of sexual violence services among Asians has not been explicitly researched, these findings align with previous literature on sexual violence among Asian and Asian American communities. For example, Asian American college students may be more likely to endorse rape myths, hold more negative attitudes towards rape victims, and tolerate sexual harassment than white students (Mori et al., 1995). These attitudes are held more strongly by Asian American men, and they are thought to relate to ethnic and cultural values among those with less acculturation (Koo et al., 2012; Mori et al., 1995). Asian American victims report sexual violence less frequently than the general population, partially from confusion about what qualifies as sexual violence (Bryant-Davis et al., 2009). A combination of Asian students' attitudes towards sexual violence, low reporting of victimization, and other cultural factors may be associated with lower levels of knowledge about sexual violence services.

Among students of color, the average self-efficacy score was greater than the average self-efficacy score among white students (Table 6). Comparing "white" and "other race" categories broadly, "other race" categorization was associated with a 0.09 higher self-efficacy score. Black race was associated with a 0.17 higher self-efficacy score compared to white race (Table 11). Although racial differences of self-efficacy related to sexual violence outcomes are largely unstudied, these finding contrasts existing research. To date, evidence suggests Black women report lowered self-esteem and heightened self-blame after victimization compared to their white peers resulting from internalized and external cultural and social pressures (Bryant-Davis et al., 2009; Neville et al., 2004; Tillman et al., 2010). It is possible, however, that a Black student may experience additional minority stress while still seeking external resources. Thus, more studies are

necessary to further illustrate how race and ethnicity impact self-efficacy to use sexual violence services.

A greater proportion of students of color reported using sexual violence services compared to white students, and other races categorization was associated with a 41% greater odds of service use. Specifically, a greater proportion of Black students reported high service utilization compared to white and Hispanic students, and Black race was associated with a 96% greater odds of service use than whites. When considering only those with a history of violence at baseline, differences between broad "white" and "other races" categorizations were not found. However, in the disaggregated groups, racial differences were detected between Black and Hispanic sample. Over 20% of Black students who had a history of victimization reported using services compared to 10.4% of Hispanic students. Compared to white students, Black students were associated with a 91% higher odds of service utilization among those with history of victimization.

These findings do not align the strong body of evidence that disclosure and help-seeking among Black students is lower than white students (Bryant-Davis et al., 2009; Donovan & Williams, 2002; Tillman et al., 2010). Most literature has shown Black students are less likely to disclose or seek services because of a complex of interpersonal, cultural, and structural barriers (Bryant-Davis et al., 2009; Tillman et al., 2010). This sample is unique because participants were recruited from CHCs. An epidemiologic study found that Black students utilize CHCs at higher rates than white students for both primary care and mental health services (Turner & Keller, 2015). This could partially be attributed to lower rates of health insurance coverage among Black students compared to white students (Henry et al., 2018). Higher CHC utilization rates, in combination with elevated self-efficacy to use sexual violence services among Black students, may be associated with the increased odds of sexual violence service use. In other words, Black students in the sample

may be more likely to seek help and utilize available health services than the general population, influencing service utilization rates after sexual violence victimization.

4.2 Additional findings

4.2.1 Sample characteristics

Over half of this sample reported a history of sexual violence victimization, which is significantly greater than estimates for the general population. Women reported higher rates of victimization at baseline compared to men, consistent with previous literature (Cantor et al., 2020; Smith et al., 2018). However, no differences in victimization rates were found by broad race categorization or by racial groups, in contrast with evidence of varying prevalence rates by race and ethnicity (Bonar et al., 2020; Cantor et al., 2020). This could be partially a result of the recruitment methods, as only students who visited CHCs in Western PA and West Virginia were enrolled in the study, whereas previous largescale studies sample from entire student populations at multiple institutions nationwide. A larger percentage of students with a history of sexual violence at baseline were members of Greek life, relating to previous research on the co-occurrence of sexual violence and social context (Bonar et al., 2020; Krebs et al., 2007).

Overall, students' knowledge of sexual violence services was high in this sample, with the average self-reported summary score of 3.64 out of a maximum of 5. Findings indicate there are differences in students' knowledge of sexual violence services. This provides evidence that there are continued disparities in knowledge of sexual violence services, despite universities' advancement of prevention and intervention programs for students (Streng & Kamimura, 2015).

Importantly, this study only assessed students' abilities to identify five sexual violence resources; comprehensive knowledge of how to access services was not ascertained (Halstead et al., 2017; Hayes-Smith & Levett, 2010; Sabina & Ho, 2014). Thus, this study, like others in the current body of research, fails to fill gaps between associations of knowledge of sexual violence services and comprehensive awareness of how to utilize them.

This study assesses perceived self-efficacy to use sexual violence services as an indicator of likelihood to use services, which generally does not accurately reflect actual rates of service use after victimization services (Sabina & Ho, 2014; Stoner & Cramer, 2019). This trend is represented in this sample, with students reporting high self-efficacy to use services (3.39 of 5) but overall low utilization rates (13.9%) among those with a history of sexual violence victimization (Table 6). Further, self-efficacy in sexual violence studies is heavily situation-dependent and can be influenced by characteristics of an assault (Bockers et al., 2014; Littleton & Decker, 2017). Therefore, more research is needed to better characterize college students' self-efficacy after sexual violence and the potential effects of race, gender, and history of victimization.

The prevalence of victimization before college was about 57%, which is much greater than estimates from previous studies; for example, the 2019 AAU Campus Climate Survey found that about 26% of women and 7% of men reported experiencing nonconsensual sexual contact (Cantor et al., 2020). This difference could be attributed to additional health needs or resource utilization patterns of those with victimization history; even if students with victimization at baseline did not utilize a sexual violence service, they may be overrepresented in this sample because of recruitment from CHCs. Over nine percent of the full sample reported using any sexual violence service, although 57% indicated a history of victimization before college. Of the 1281 individuals who experienced victimization before college, 14% reported using any sexual violence service

(Table 5). This aligns with a large body of evidence that service utilization and formal help-seeking after sexual violence victimization remains low, and these percentages align with ranges from systematic reviews. One review reported that formal disclosure rates among college students range from 0-15.8% (Sabina & Ho, 2014), while another reported ranges from 5-48% (Stoner & Cramer, 2019).

4.2.2 Gender differences

Cisgender women had higher self-reported levels of knowledge compared to men (Table 7), and being a woman was associated with 6% higher rate of knowledge (Table 11). These findings support some previous studies that found women consider campus sexual violence to be more of a problem than men, and that women are more knowledgeable about services than men (Cantor et al., 2020; Walsh et al., 2010). Gender differences could also derive from young women's elevated risk of victimization (Smith et al., 2018), targeted marketing of sexual violence services to women (McMahon & Stepleton, 2018), or high rates of informal disclosure among peers (Halstead et al., 2017). However, these conclusions are not consistent across studies, with other studies finding no difference in knowledge by gender (Garcia et al., 2012; Hayes-Smith & Levett, 2010). Therefore, more research is necessary to determine if gender alone, or if gender in association with other factors, contributes to these differences in knowledge level.

Women reported higher self-efficacy to use services (Table 7), and being a woman was associated with a 0.44 higher self-efficacy score compared to men (Table 11). Within-gender comparisons found that on average, men of color reported higher self-efficacy scores; this difference was not reflected in the comparison among women (Table 8). This suggests that an interaction of race and gender may influence self-efficacy to use sexual violence services. It is

possible that women's elevated scores are associated with characteristics, such as history of victimization at baseline, that were more common among women. However, further analyses are necessary to characterize this relationship, as currently no existing research has studied the role of race and gender on self-efficacy related to sexual violence victimization and service utilization.

Considering only those with a history of violence at baseline, cisgender men reported higher percent utilization than cisgender women. Women had lower odds of use of service utilization compared to men. These findings contrast existing literature, which indicates sexual violence service utilization and CHC utilization rates among men are lower than among women (Allen et al., 2015; Turner & Keller, 2015). Barriers to disclosure are thought to be greater for men who experience sexual violence because of rape myths and stigma, and because existing resources typically focus on supporting women (Allen et al., 2015). Thus, since men in this sample were recruited from a CHC, they may be more likely to engage in help-seeking behaviors than the general population, which may be associated with greater sexual violence service utilization rates.

4.2.3 Greek life membership

In this sample, Greek life membership was associated with a 6% higher rate of knowledge, compared to those not in Greek life (Table 11). Although campus education about sexual violence is not standardized across institutions, many colleges have introduced additional prevention strategies in attempts to reduce the prevalence of sexual violence victimization in these high-risk settings (DeGue et al., 2014). If programs were implemented in this sample of students, these findings suggests that prevention tactics and exposure to information about sexual violence services may have a small effect on members' self-reported knowledge of sexual violence services

(McMahon & Stepleton, 2018). However, this is only conjecture, as students' exposure to messages of sexual violence resources was not assessed.

4.2.4 History of victimization at baseline

This study found no differences or associations in knowledge of sexual violence services by history of sexual violence before college, although current literature suggests that prior victimization may be associated with increased knowledge (Walsh et al., 2010, Table 9, Table 11). Given the high prevalence of students with a history of victimization, additional research is necessary to determine if these experiences are associated with increased knowledge of services.

Those with a history of sexual violence victimization before college reported greater self-efficacy scores (3.48) than those without a history of sexual violence (3.27) (Table 9). Linear regression indicated history of victimization was associated with a 0.22 higher self-efficacy score. This contrasts previous research that shows experiences of sexual violence reduce an individuals' self-efficacy (MacMillan & Hagan, 2004; Stoner & Cramer, 2019). However, it is possible that students with a history of victimization before college may not use previous experiences to judge their self-efficacy (Littleton & Decker, 2017). Some literature indicates that victims may rely on past instances of sexual violence to protect themselves against future revictimization; that is, those with previous victimization may developed additional tactics to protect themselves, and the acquisition of these skills may relate to increased self-efficacy to use services (Bockers et al., 2014; Littleton & Decker, 2017). Age was a significant predictor, with an estimated 0.03 increase in self-efficacy score for every additional year. However, those with history of victimization at baseline were older, so this effect may be a result of confounding and the association between history of victimization and age.

Among those who endorsed a history of victimization before college, reported service utilization was more than triple that of non-victimized peers. The odds of use among students with a history of victimization was almost 3.5 times the odds of students without (Table 9). This is reasonable, given that those with no history of victimization likely have less need to utilize support services.

4.3 Implications

Overall, this study described racial differences in a sample of college students' knowledge of, self-efficacy to use, and use of campus sexual violence services. In line with previous research, students of color reported lower rates of knowledge compared to white students. Surprisingly, students of color reported higher self-efficacy and use compared to white students. These findings indicate persistent gaps in campus sexual violence prevention and intervention efforts such that college students are still not reached equally. Further, this study identified areas for research into the influence of race in campus sexual violence prevention and intervention, as patterns within campus sexual violence outcomes not aligned with current literature.

4.4 Strengths and limitations

Strengths of this study includes its consideration of race and ethnicity as influencing factors of college students' knowledge, self-efficacy, and use of sexual violence services. This is one of the first analyses of the GIFTSS dataset considering race and ethnicity as a primary predictor of

sexual violence outcomes. It also identified potential populations within campus sexual violence research whose trends in sexual violence outcomes are different than the general population.

Results must be interpreted with several limitations in mind. First, this study was conducted with a predominantly white, cisgender female sample, a demographic generally overrepresented in campus sexual violence literature. Estimates in the aggregated "other race/students of color" category likely neglect to recognize specific racial differences of knowledge, self-efficacy, and use of sexual violence services. However, analyses of disaggregated racial and ethnic groups should be interpreted with caution, given the limited sample size of each group. Because of methodology of the original study, this sample included only those seeking care at a CHC. Students who utilize CHC services may be more likely to partake in help-seeking behaviors and may not be representative of the general student population. The study was restricted to higher education institutions in Western Pennsylvania and West Virginia, and findings cannot be generalized to other regions of the United States.

While this study begins to describe racial differences in college students' knowledge, self-efficacy, and use of sexual violence services, root causes of these disparities - such as structural and social determinants - are not considered. Direct associations of these factors on preventing and recovering from sexual violence victimization is unclear. Only unadjusted regression models were created for this analysis, so interactions and multivariable models were not assessed. Longitudinal changes in outcomes were not considered. To comprehensively understand multilevel mechanisms of race and ethnicity on campus sexual violence outcomes, additional research must be conducted.

4.5 Future directions

To better understand how race may impact college students' knowledge, self-efficacy, and use of sexual violence services, additional modeling must be completed that incorporate multilevel and interacting variables. Future research should consider the interconnected network of structural, social, cultural, interpersonal, and internalized factors that influence marginalized groups' outcomes after sexual violence. Specifically, structural racism and sexism should be operationalized to describe their associations with knowledge, self-efficacy, and use of sexual violence services, as well as health outcomes after victimization.

5.0 Conclusion

Among the GIFTSS sample of college students who visited their CHC in Western Pennsylvania and West Virginia, knowledge of sexual violence services, self-efficacy to use services, and use of services varied. Students of color reported knowing fewer services than white students but reported higher self-efficacy and use. This study supports existing literature that additional research should be conducted focused specifically on racially marginalized college populations to understand their unique needs and experiences related to sexual violence.

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