Sexual Consent Self-Efficacy and Sexual Health Communication for STI/HIV

Prevention Among College Students

by

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Abstract

Background: HIV/sexually transmitted infections and sexual violence victimization are prevalent among college-age young adults. Sexual violence prevention programs on college campuses underline sexual consent, but often overlook sexual health education. Sexual health communication should involve obtaining consent and HIV/STI prevention. This study explored the association between sexual consent self-efficacy and sexual health communication among college students and related sexual behaviors.

Methods: Data were from 2,291 students enrolled in a cluster randomized controlled trial from 28 university campuses from 2015-2017. College students were asked about their self-efficacy to obtain consent for sex, communication about condom use and STI/HIV prevention in the past 4 months, intimate partner violence experiences, and sexual health behaviors.

Results: Females displayed twice the odds of high consent self-efficacy than male students (OR 2.00, CI 95% 1.65-2.41), but were less likely to engage in conversations about HIV prevention (OR 0.59, CI 95% 0.44-0.81) or to use condoms consistently (OR 0.89, CI 95% 0.71-1.11). Odds of consistent condom use and high consent self-efficacy decreased with less communication about sexual health topics. Sexually active students with high consent self-efficacy (N=1114) exhibited over twice the odds of talking about STD prevention if they reported a history of STI diagnosis

(OR 2.28, CI 95% 1.50, 3.46). The probability of always using a condom increased with higher consent self-efficacy scores and sexual health communication.

Conclusions: While college students reported self-efficacy to obtain consent, this did not translate to sexual health communication. Women were even less likely to engage in discussion about risk reduction topics, even though communication encourages more healthy sexual behaviors. Sexual violence prevention programs that address the importance of obtaining sexual consent should include education about STI/HIV prevention and strategies promoting sexual health communication.

Public Health Significance: Young adults are burdened with a disproportionate amount of STI and HIV acquisition, but are not receiving effective sexual and reproductive health education. Additionally, they are at a critical age for developing intimate partner relationships and experience high rates of abuse and violence. Thus, further research on how sexual health behaviors and perceptions can be used as STI/HIV prevention should be explored.

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Preface

Acknowledgements

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Abbreviations

ACE	Adverse childhood experience
ACIP	Advisory Committee on Immunization Practices
AIDS	Acquired Immune Deficiency Syndrome
AYA	Adolescent and young adult
CSEP	Comprehensive sexuality education program
HIV	Human Immunodeficiency Virus
ICPD	International Conference of Population and Development
IDU	Injection drug users
IPV	Intimate partner violence
MSM	Men who have sex with men
PrEP	Pre-exposure prophylaxis
PLWHIV	People living with HIV
PTSD	Post-traumatic stress disorder
STD	Sexually transmitted disease
STI	Sexually transmitted infection
WHO	World Health Organization

1.0 Introduction

Adolescence and young adulthood are important periods for the development of intimate relationships and are characterized by risk behaviors such as unprotected sex, increasing rates of substance use, and the magnification of health and social disparities (Chen & Paterson, 2006). Substance use, social relationships, mental health, risky behavior and STIs are highly interrelated (Etcheverry & Agnew, 2008). STIs have a significant public health impact as their effects range from reproductive consequences, such as infertility, to chronic health conditions (e.g. HIV) (CDC, 2017a). STIs are preventable and treatable, but incredibly prevalent in college-age young adults. Additionally, perpetrated sexual violence is common on college campuses and likely contributes to the transmission of STIs as a result of higher likelihood of unprotected vaginal and anal sex (Decker et. al, 2014). Unfortunately, women with history of intimate partner violence (IPV) are less likely to seek STI testing or receive STI treatment further burdening the heightened risks victimized women endure (Decker et. al, 2011). While colleges' and universities' efforts to reduce sexual violence on campus are substantial, the implemented interventions disregard the opportunity to educate on sexual health and healthy sexual behaviors. Obtaining sexual consent is a crucial message emphasized to prevent unwanted sexual experiences in college, but this strategy does not guarantee nor encourage healthy sexual practices to protect individuals from negative health outcomes such as STIs and HIV.

1.1 STIs/HIV in Young Adults

As of 2017, adolescents and young adults (AYA) age 15-24 accounted for approximately half of all new STIs nationally despite only making up 25% of the sexually active population. One-quarter of sexually active women in this age group were positive for an STI (CDC, 2018; Sieving et. al, 2019). Sieving et. al (2019) indicated that AYA carry disproportionate burdens of STIs for not only behavioral reasons, but also biological and social reasons, including: variation in biological maturation, age at sexual onset, condom use inconsistencies, lack of access to quality health care and treatment, and education and employment opportunities (Sieving et. al, 2019). Older age and life experience present as protective factors against STI acquisition that youth simply cannot take advantage of. Other components, such as condom use patterns and age of sexual debut, are usually within youths' control. However, without adequate education on common sexual health information younger individuals may not know how to best protect themselves.

Some prophylaxis methods are available for AYA. These options can be useful, but this assumes younger individuals have access to health care settings and awareness of the existence of such options. In 2012, World Health Organization (WHO) officially recommended oral PrEP for HIV prevention to be disseminated to men who have sex with men (MSM) and serodiscordant couples (Fonner et. al, 2016). Since then, PrEP has been endorsed for other key at-risk populations and used widely by all populations (Fonner et. al, 2016). In a study of adolescent MSM testing their awareness, knowledge, and use of PrEP, 91% had never talked about PrEP with their healthcare provider even though only 45% had never heard of PrEP before (Macapagal et. al, 2019). This demonstrates the low recognition of PrEP and youths' reluctance to talk to clinical providers about initiating use. In this same sample, 2.5% indicated having used PreP before with the most common barrier being unfamiliarity with where to access and inability to pay for PrEP

(Macapagal et. al, 2019). Initiation of PrEP use is a preliminary issue for AYA, but maintaining the schedule of regularly taking it is an added complication. The effectiveness of PrEP is strongly dependent on proper adherence and several studies show that adherence in young men range from 0-75% and 28-37% by young women (Chu et. al, 2019). The use of PrEP is very protective against HIV acquisition, and users noted feeling more comfortable discussing STI/HIV and an added sense of security. The responsibility of remembering to take the medication and the anticipated disapproval or negative judgement from sexual partners were common themes expressed by non- and inconsistent-users (Chu et. al, 2019). An intervention targeting AYA that addresses the shared obstacles the population faces to PrEP initiation and adherence is in dire need. Its use not only serves as protection, but also fosters periodic HIV and STI testing (Chu et. al, 2019).

Human papillomavirus (HPV) is the most common STI among AYA and is associated with many cancers and the rapid progression of malignancies of HIV (Lacey, 2019; Munn et. al, 2019). Additionally, HIV can reduce the effectiveness of HPV vaccine protection even though HPV immunization is proven to be very safe for healthy immunocompromised individuals (Lacey, 2019). Gardasil vaccinations for protection against HPV is recommended for young adolescents beginning at age 11 by the United States Advisory Committee on Immunization Practices (ACIP), but approximately 63% of the population are covered, falling short of the 2020 goal of 80% coverage (Munn et. al, 2019). Though rates of coverage have been increasing since 2009, young boys and youth living in rural areas have some of the lowest rates of coverage (Vielot et. al, 2019). Gardasil is protective against HPV-16 and HPV-18, the two types most correlated with cervical cancer development, but vaccination does not replace screening and individuals are still susceptible to becoming infected with HPV (Harper & DeMars, 2017). Furthermore, immunization is most preventative with complete dosage, so individuals with only one vaccine dose are not fully

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protected (Vielot et. al, 2019). Having access to HPV vaccinations continues to be a major obstacle for youth as they likely have to depend on a parent or guardian for transportation, familiarity with local physicians, and health insurance coverage. With more immunization coverage, theoretically HPV incidence and amplified exposure to HIV will decline, but incidence of HPV has remained consistent while prevalence in AYA has significantly decreased since the introduction of the vaccine (CDC, 2018).

Other common STIs are continually rising. Since 2013, incidence and prevalence of chlamydia, gonorrhea, primary and secondary syphilis, HIV and herpes simplex virus-1 (HSV-I) increased each year in both young adult men and women (CDC, 2018). Three out of four individuals infected with *C. trachomatis* are between the ages of 15 and 24 (Jørgenson et. al, 2015). Displayed in Figure 1A are cases of chlamydia per 100,000 population in young adults age 20-24 from 2013 to 2017. Young women are disproportionately affected by the chlamydial infection, but the number of individuals newly infected increased at a higher rate for young men. Additionally, young adult women have the highest rate of infection of any other age group for either gender. From 2013-2017 the rate of chlamydial infections increased by 30.1% in males and 10.9% in females. As displayed in Figure 1B, rates of gonorrhea increased by 27.4% and 55.2% in young adult women and men, respectively. Primary and secondary syphilis doubled in young adult women since 2013 and increased in men by 50.0% shown in Figure 1C. Since 2011, rates of HIV have remained stable in most age groups even with the introduction of PrEP in 2012, but young adults age 20-24 had an increase in diagnoses by 30.3% through the year 2015 (CDC, 2016). Of young adult males diagnosed in 2017, 91% of cases were attributed to MSM. While orolabial HSV-I infections have decreased, genital HSV-I cases have increased in young adults, which

Sieving et. al (2019) postulated could be due to the decline of orolabial HSV-I and increase in oral sexual behaviors.

Engaging in healthy sexual behaviors, like consistent condom use and substance- and alcohol-free encounters, prevent STI/HIV acquisition and transmission. Alcohol and substance use can interfere with individuals' ability to have reasonable discussion surrounding condom negotiation due to lowered inhibitions (Abebe et. al, 2018. As sexual experiences increasingly occur in college, understanding strategies that campuses can incorporate into their programming to promote healthy sex practices should be explored.

(A)
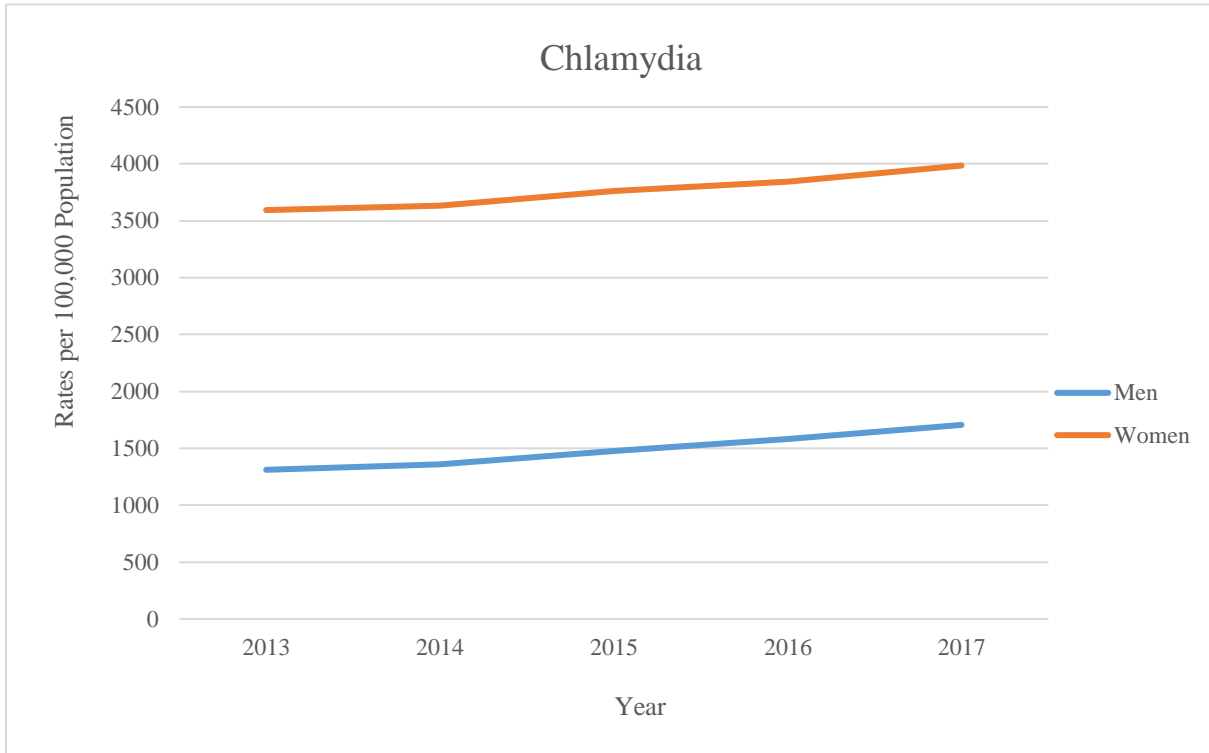
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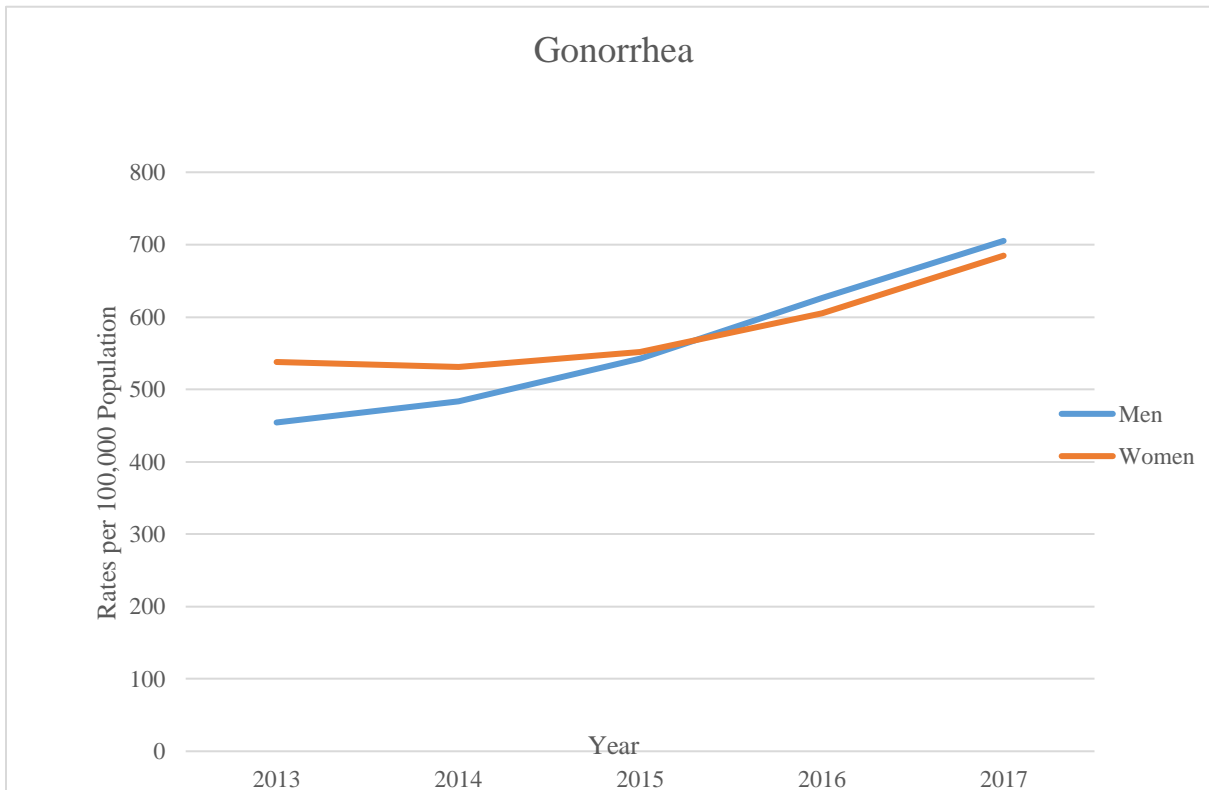
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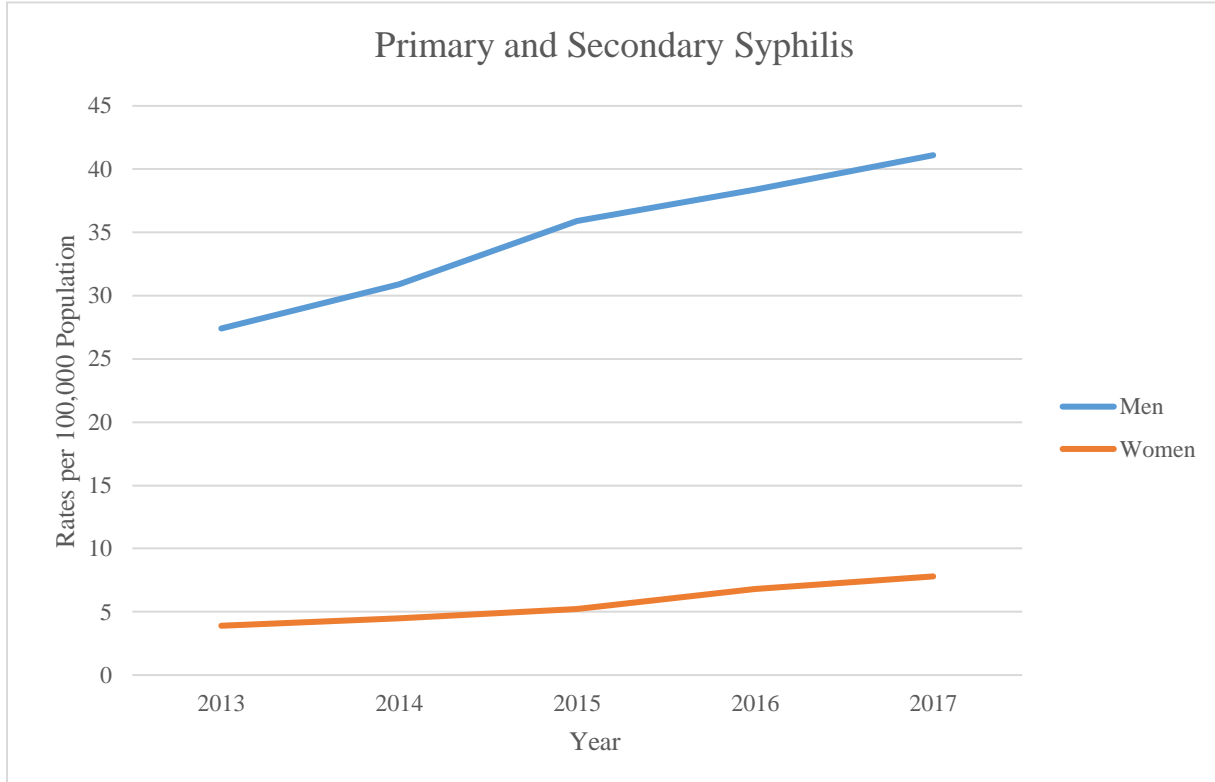
Figure 1 Prevalence of STIs in US

Cases of Chlamydia, Gonorrhea, and Primary and Secondary Syphilis in Young Adult Men and Women, 2013-2017. Data adapted from Centers for Disease Control and Prevention. ***Sexually transmitted disease surveillance 2017.***

1.2 Current STI/HIV Prevention Methods on College Campuses

The need for formal sexual health education programming for youth, especially teenagers, was made apparent during the mid 1990s after the International Conference of Population and Development's (ICPD) proposal for a Programme of Action in 1994 encouraged governments to invest in proper sex education (Leung et. al, 2019). This was also during a pandemic period of HIV/AIDS, further highlighting the significance of comprehensive sex education. Although sex

education is offered at the secondary-education level, other programs and interventions targeting high-risk populations, namely MSM, injection drug users (IDU) and sex workers, have been developed to provide sexual health education outside of an academic setting. Sex education is not consistent across the country as policies are mandated at the state level and curricula vary. Furthermore, little is known about the effectiveness of such programming on long-term sexual behaviors due to difficulty in measurement inaccuracies (Leung et. al, 2019; Hubach et. al, 2019).

The average age of sexual debut in the United States is 17.1 years, so many students enter college having already experienced sexual intercourse (Garcia et. al, 2019). With the increasing popularity of "hook up" culture in young adults, or engaging in sexual activities with uncommitted partners or partners whom one is not currently dating, it is understood that college students are a population susceptible to the consequences of risky decisions and actions (Garcia et. al, 2019). This is true for other behaviors adjacent to sex, such as alcohol and drug use. Almost 60% of young adults indicate having drank alcohol in the past month (Garcia et. al, 2019). Research reveals that young adults in college want more available information on sexuality and sexual health, but comprehensive sexual education programs (CSEP) are not customarily in existence on campuses (Hubach et. al 2019). Despite the short-term success of CSEP interventions to examine receptiveness and efficacy of sexual and reproductive health teachings, longevity of literacy and changed behaviors are unknown (Richards et. al, 2019; Hoffman & Argeros, 2019). In the absence of CSEP on campuses, colleges and universities utilize alternative options to offer sexual health information.

Sexual Violence Prevention

Sexual violence and unwanted sexual contact are prevalent among college age individuals and disproportionately occur in women more often than men (Coulter et. al, 2019). A cross-

sectional survey distributed to over 70,000 undergraduate students revealed in the past 12 months 7% of students reported being victims of sexual assault (Coulter et. al, 2017). A study examining women's experiences with sexual coercion in college demonstrated that 27% had experienced at least one instance of sexual aggression in college (Gross et. al, 2006). More recently, Abebe et. al (2018) reported that 20-25% of women and 5-7% of men experience sexual contact involving force or impairment including sexual coercion, non-consensual sexual contact, and rape on college campuses. Additionally, almost 70% of women will experience some form of perpetrated sexual aggression in their life by the time they reach their fourth year of college (Smith et. al, 2003). In the National College Health Assessment Fall 2018 report for undergraduate students, 11.6% reported experiencing unwanted sexual contact in the past 12 months, underscoring the need for continuing focus on prevention of campus sexual assault (ACHA-NCHA, 2018).

Policies such as the Clery Act, Title IX, and the Violence Against Women Act are intended to reduce sexual and partner violence. They aim to ensure that colleges and universities address sexual violence through sexual misconduct education, resources for victims to encourage reporting, and prevention strategies. A review of sexual violence prevention programs determined that most guidelines are centered on deterrence and risk reduction and are most effective when they are one-gender targeted and lecture-based (Vladutiu et. al, 2011). Since men are more frequently the perpetrators of sexual assault, prevention methods focus on controlling sexual aggression, changing attitudes or beliefs regarding unwanted sexual experiences, encouraging bystander intervention, and clarifying the concept of consent (Gidycz et. al, 2011). Borges et. al (2008) exhibit that altering the narrative surrounding consent and demonstrating knowledge of understanding consent are significant components of an effective prevention strategy against sexual violence. Though consent is a key message, the definition and perceived understanding of

the concept of consent can be subjective. Research demonstrate that men generally are comfortable and in control of sexual assertiveness and consent obtainment, but those that are not in control usually also have a more unclear comprehension of consent (Pugh & Becker, 2018). The dynamics of gender power in sexual relationships adds complications to the ambiguity of consent. Women may agree to sexual activity to avoid refusal but actually not want to partake in sexual activity at all, which often results in sexual coercion (Pugh & Becker, 2018). Thus, it is open to question whether individuals comprehend and are truly confident in abilities to offer and obtain sexual consent.

The short- and long-term health consequences associated with sexual violence are diverse; post-traumatic stress disorder (PTSD), eating disorders, depression, anxiety, and various other psychological sequelae have been reported, in addition to heightened risk for alcohol and substance abuse, unintended pregnancies, and acquisition of STIs (Jina & Thomas, 2013). The CDC's Sexual Violence prevention technical package, one that is often used as a guide for implementation at colleges and universities, is considerably extensive. Contents include promoting social norms, opportunities to empower and support females, creating protective environments, and skills to prevent sexual violence which incorporates education on the negative health outcomes of sexual violence as well as a short section promoting sexual communication as an approach to violence prevention (CDC, 2019). While sexual health is a topic briefly covered as a component of sexual violence prevention, few prevention programs for college students actually integrate education about sexual risk behaviors.

Sexual and Reproductive Health Resources

Over 70% of colleges and universities offer health care services on campus, of which 73% offer STI diagnosis and treatment and contraceptive services and 66.8% provide condoms (Habel

et. al, 2018). Even with the availability of services, numerous obstacles hinder students from taking advantage of convenient resources. In an assessment of students' perceptions of health care providers in regards to sexual health services, Garcia et. al (2014) noted barriers included lack of knowledge of local providers, difficulty transitioning from pediatric to young adult care, worries about insurance coverage and payment, complication with scheduling appointments, and perceived need for benefits of care. In the same study, students were more likely to seek care from campus providers that were professional and qualified, but also approachable and able to address sexual health concerns objectively (Garcia et. al, 2014). Welcoming and positive encounters help alleviate some of the fear of negative judgment from providers, but students' reluctance to seek care exhibits the perpetual stigma surrounding sexual health (Cassidy et. al, 2018).

In the same study examining student perceptions of providers, students indicated desiring more awareness of available services through the use of technology (Garcia et. al, 2014). Fontenot et. al (2016) conducted a study of HPV and HPV vaccination information across college campus health websites nationally and concluded that only about 50% of websites include information regarding HPV. Despite only focusing on HPV, these authors' suggestion to provide more accurate and accessible sexual health information on websites and in health care facilities is a straightforward way to promote health on a campus-wide level (Fontenot et. al, 2016).

In the cases of sexual assault, victims are even less likely to seek care for fear of family and peers finding out, shame and embarrassment, and misperception of the severity of the unwanted sexual experience. Only about 13.9% of victims of forced rape and 7.6% of victims of incapacitated rape seek care (Stoner & Cramer, 2019). Several other factors like fear of retaliation from perpetrator and dismissive responses from informal disclosure also contribute to these low rates of care-seeking (Stoner & Cramer, 2019). Sexual violence cases are much more complex in

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relation to receiving health care because in addition to sexual health, psychological and physical health should be evaluated.

The number of sexual health resources on college campus is positively associated with students' sexual health behaviors (Eisenberg et. al, 2013). A study of Minnesota colleges discovered evidence of more sexual health resources lowering the odds of sex without contraception, sex without condoms, and involvement in unplanned pregnancy (Eisenberg et. al, 2013). Even though the quantity and quality of sexual health services are of value, convenience and knowledge of available services on campus equally impact utilization by students.

1.3 Sexual Health Communication

In a meta-analysis of almost 100 studies, it was determined that intentions to use condoms were strongly associated with condom use, but even with clear intentions condom use is not guaranteed (Albarracín et. al, 2001). Widman et. al (2013) suggested that moderating factors, such as sexual health communication, enhance the strong association by converting intention into action.

Several studies provided evidence that sexual communication is a strong predictor of healthier sex practices, but only half of sexually active individuals communicate about condom use intentions (Widman et. al, 2018). In an analysis of the impact sexual communication has between condom use intention and condom use in people living with HIV (PLHIV), researchers found that high intentions to use condoms led to less unprotected sex when individuals communicated about condoms beforehand (Widman et. al, 2013). In knowing that intentions are not always enough to predict behavior, moderators like sexual health communication can promote

translating intention into practice. In a study conducted by Crosby et. al (2016) of how MSM's psychosocial characteristics influence sexual health behaviors, namely condom use, they found a 15.5% reduction in unprotected anal sex among men that reported always or almost always discussing condom use before sexual arousal. This indicates that there is a moderating effect of sexual communication on subsequent behaviors.

Though communicating appears to be a simple solution to encouraging positive sexual experiences and a protective strategy for STI/HIV acquisition, it can be much more complicated when factoring in abuse and victimization. Compared to women that did not experience sexual violence in their life, women exposed to violence had more depressive symptoms, lower self-esteem, higher interpersonal stress, admitted to being afraid to moderate condom use, and were less likely to communicate about sexual decisions (Sales et. al, 2008). Lack of confidence and power to negotiate condom use with abusive partners leaves victims even more vulnerable to partaking in unhealthy sexual behaviors. In theory, sexual decision-making is shared equally between partners, but harmful relationships that operate on fear and power inequality may discourage victims from communicating. This must be accounted for and addressed when advising forthright partner communication.

Stigma, embarrassment, and sensitivity may hinder individuals from conversing about their sexual health. This is particularly relevant for AYA as they are going through maturation and first-time intimate relationships (Widman et. al, 2014). PLWHIV and individuals with a history of STI diagnosis may have a similar unwillingness to share their sexual health background in anticipation of negative judgment (Widman et. al, 2013). As a society, topics surrounding sex are treated delicately and deemed inappropriate.

1.4 Research Questions

While college campuses are adamant about enforcing the significance of obtaining sexual consent, there is a gap in literature on sexual health communication practices and individuals' self-confidence to obtain consent. It has been demonstrated that communication and intention impacts behaviors, but it is unknown whether obtaining consent reflects healthy sex practices like condom use, and if STI/HIV prevention is discussed when obtaining consent. Dialogue concerning consent is necessary in avoiding sexual violence perpetration and victimization, but adequacy translating to healthy sexual behaviors is unknown. There is limited evidence on young adult's self-perceived ability to obtain consent in addition to their self-reported sexual practices. The aim of this study is to assess self-discerned capacity to obtain consent for sex, sexual health communication, and condom use as a proxy for sexual health behavior among college students. Since obtaining sexual consent is a strategy being used to reduce sexual violence on college campuses, the evaluation of students' self-efficacy to obtain consent may give more insight to how students' self-assurance and intentions lead to sexual communication and behavior.

The objective of this thesis is to examine the following questions;

1) What is the relationship between sexual consent self-efficacy and sexual health communication among college students?

2) How does the relationship between sexual consent self-efficacy and sexual health communication translate into condom use?

In this thesis, sexual health communication and sex communication may be used interchangeably and will be defined as the verbal discussion or negotiation of safe sex between sexual partners, including topics such as STI/HIV history and prevention, contraceptive use, and

unintended pregnancy prevention. Consent self-efficacy is one's recognized capacity and comfortability to obtain sexual consent from sexual partners.

2.0 Methods

2.1 IRB Approval and Funding

This study is secondary data analysis from the College Health Study under principal investigator Dr. Elizabeth Miller through University of Pittsburgh Medical Center Children's Hospital's Division of Adolescent and Young Adult Medicine (IRB #: MOD14050158-07/PRO14050158). The data analyzed for this study were collected as part of a randomized controlled trial funded by the National Institute on Alcohol Abuse and Alcoholism R01AA023260 to Dr. Elizabeth Miller and was funded in part through a grant from the Eunice Kennedy Shriver National Institute of Child Health and Human Development T32HD087162-03.

2.2 Study Subjects

Data were from a two-armed cluster randomized controlled trial of a campus health center-based intervention designed to decrease alcohol use and increase knowledge of sexual violence resources and harm reduction strategies. Students (n=2,291) attending a campus health or counseling center were recruited from 28 college and university campuses in Pennsylvania and West Virginia within a 3- to 4-hour radius of Pittsburgh. Participants were recruited during walk-in visits or scheduled appointments at their campus health center and completed an online survey pre- and post-clinical visit for baseline information. As part of the trial design, ongoing data collection occurred at 4 months and 12 months for follow-up, but only baseline data were assessed

in this study. Students were included in analysis if they had complete data on age, sex and race/ethnicity (n=2,273). Individuals identifying as trans female (n=2), trans male (n=3), nonbinary (n=12) or other (n=3) were excluded due to the small sample size. The final analytic sample include 2,253 participants.

2.3 Measures

The College Health baseline survey collected participant information on an assortment of subjects. Although alcohol use and recognition of sexual coercion and campus resources were principal focuses of the intervention, other variables were evaluated. The online survey asked questions regarding patient characteristics of basic demographics and disability, psychosocial, self-efficacy questionnaires; campus level factors of knowledge and use of resources; sexual and reproductive characteristics and behaviors including intercourse, sexual communication, pregnancy, abortion, and STI history; health care seeking questions assessing numbers of and reasons for visits; history of alcohol and substance use; sexual violence and sexual coercion victimization and perpetration questions; and violence-related topics like harm reduction and intervening behaviors. For the purpose of this research, victimization and sexual behavior characteristics were central themes for analysis.

Demographics

Participants were asked their age in years, college or university of attendance, year in school (1st-5th year undergraduate students, graduate, or other), and self-reported gender and race/ethnicity. The attending school and year in school variables were removed from analysis to protect anonymity of participants.

Sexual health characteristics

Participants that answered affirmatively to whether they had ever had penetrative vaginal or anal sex were asked "At what age did you first have sex?" and "Has a doctor ever diagnosed you with an STI?" Responses for age of sexual onset were dichotomized into binary outcomes of before age 14 and at or above age 14.

Intimate partner violence

To assess physical IPV, students were asked "Has someone you were dating or going out with ever physically hurt you on purpose? (Include such things as being hit, slammed into something, or injured with an object or weapon.)".

Unwanted sexual experiences were examined by asking how many times (0, 1, 2, 3, or 4+ times) the participant experienced the following six questions before college and since college: how many times has anyone fondled, kissed or touched you sexually when you indicated that you didn't want to; how many times has anyone tried to have sex with you (but it did not happen) when you indicated that you didn't want to; how many times has anyone made you have vaginal sex when you indicated that you didn't want to; how many times has anyone made you do oral sex or have it done to you when you indicated that you didn't want to; how many times has anyone made you have anal sex when you indicated that you didn't want to; how many times has anyone penetrated you with a finger or objects (vaginally, orally, or anally) when you indicated that you didn't want to? (Carey et. al, 2015). The sum of responses gave scores between 0-30, and dichotomized to 0 for no experiences and 1 if scoring greater than or equal to 1.

In evaluating cyber partner abuse victimization, participants were asked to respond yes or no if a partner has ever: made mean or hurtful comments to you using mobile apps, social networks, texts, or other digital communication; spread rumors about you using mobile apps, social networks,

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texts, or other digital communication; made a threatening or aggressive comment to you using mobile apps, social networks, texts, or other digital communication; tried to get you to talk about sex when you did not want to, using mobile apps, social networks, texts, or other digital communication; asked you to do something sexual that you did not want to do, using mobile apps, social networks, texts, or other digital communication; posted or publicly shared a nude or semi-nude picture of you using mobile apps, social networks, texts, or other digital communication; repeatedly contacted you to see where you were and/or who you were with using mobile apps, social networks, texts, or other digital communication? (Dick et. al, 2014). A summation of responses to each item designated scores between 0 and 8 and cyber abuse was dichotomized to 0 if no victimization and 1 if participant scored greater than or equal to 1.

Outcome Variables

Self-efficacy to obtain sexual consent

This was assessed using 10 items: I would have difficulty asking for consent because it would spoil the mood; I am worried that my partner might think I'm weird or strange if I asked for sexual consent before starting any sexual activity; I would have difficulty asking for consent because it doesn't really fit with how I like to engage in sexual activity; I would worry that if other people knew I asked for sexual consent before starting sexual activity that they would think I was weird or strange; I think that verbally asking for sexual consent is awkward, I have not asked for sexual consent (or given my consent) at times because I felt that it might backfire and I wouldn't end up having sex; I believe that verbally asking for sexual consent reduces the pleasure of the encounter; I would have a hard time verbalizing my consent in a sexual encounter because I am too shy; I feel confident that I could ask for consent from a new sexual partner; and I feel confident that I could ask for consent from my current partner (Humphreys et. al, 2010). Response options

included a 5-point Likert scale from "strongly disagree" to "strongly agree" and reverse coded so that higher scores corresponded to greater consent self-efficacy. Summary scores were calculated for each participant. A score of 30 or more indicated high consent self-efficacy (range 0-40).

Condom use

Condom use was assessed through a condom use frequency question. Participants were asked "When you had vaginal or anal sex in the past 4 months, how often did you or your partner use a condom?" Response options included a 5-point Likert scale from "never" to "every time". A separate variable of consistent condom use was generated for respondents indicating always using a condom in the past 4 months (5 on Likert scale). Dichotomization represented 0 for inconsistent condom use and 1 for using a condom every time.

Sexual communication

Sexual communication questions included an assessment of participants recalled conversations with partners about STI/HIV risk reductions. Questions included "During the past 4 months, how many times have you and the people you are having sex with talked about how to use condoms?"; "During the past 4 months, how many times have you and the people you are having sex with talked about how to prevent getting HIV?"; and "During the past 4 months, how many times have you and the people you are having sex with talked about how to prevent getting STDs?" (Milhausen et. al, 2007). Participants were asked to report the number of times (never, 1-3 times, 4-6 times, and 7 or more) they talked about each risk reduction topic. Responses were dichotomized to 0 (never) and 1 (any times reported).

2.4 Statistical Analysis

Descriptive statistics were performed to examine distribution and frequency of sample characteristics. Missing observations from each variable were also reported. Condom use frequency and consent self-efficacy were examined between each demographic, sexual characteristic, and IPV experience groups using ordinal logistic regression to determine the difference of condom use behavior and consent self-efficacy. The number and proportion of students with consistent condom use and consent self-efficacy were identified and a z test of proportions was performed. P-values for test of equal proportions were reported and bolded to indicate significance.

To evaluate the relationship between consent self-efficacy and sexual health communication, descriptive tabulation of relative frequency of sexual communication between low and high consent self-efficacy groups was performed. A z test was performed to test significance of difference in proportions of sexual communication in low and high consent self-efficacy groups. Analysis of the correlation between consent self-efficacy scores and frequency of sexual health communication was conducted to examine the association. Additionally, a sample subgroup of sexually active participants with high consent self-efficacy only (based on consent self-efficacy score equal to or above 30) were analyzed using ordinal logistic regression to review odds of sexual communication about the three sexual risk reduction topics. Adjusted odds with 95% confidence intervals were also reported to adjust for gender and race/ethnicity as confounding factors.

To observe effects of the relationship of consent self-efficacy and sexual communication on sexual behaviors, logistic regression with interaction effect was performed to determine the slope probability of consistent condom use. 95% confidence intervals are displayed. Additionally,

logistic regression of consistent condom use with consent self-efficacy or condom use communication as moderating variables was performed to examine the direct and indirect impact on condom use. Analyses were adjusted for gender and self-reported race/ethnicity. All analyses were performed in STATA/SE 15.1 (College Station, TX).

3.0 Results

Of the 2,253 participants, the mean age was 20.05 years (SD 1.54) and majority were female (72.37%) and White (76.87%). Most students reported having made their sexual debut (75.76%), but only a small proportion engaged in sexual health communication of risk reduction topics. Frequency of sexual communication did not vary by consent self-efficacy levels. Probability of consistent condom use increased with more sexual health communication and higher consent self-efficacy scores.

Demographics

As displayed in table 1, a quarter of the sample was made up of male students, and Black, Hispanic or Latinx, and other races made up a quarter of the race/ethnicity of the sample. The mean age was 20.05 years and only 24.24% had not had vaginal sex in their lifetime. Of those that made their sexual debut, majority had their first sexual experience after the age of 14 (97.29%). 23.39% of students indicated a lifetime experience of anal sex and 8.95% self-reported a positive diagnosis of an STI in their lifetime. In examining frequency of sexual health communication in the past 4 months, 48.51% of participants never communicated about how to use condoms, 77.57% never discussed HIV prevention, and 69.02% reported no communication about STD prevention. It is important to note that over 20% of observations were missing from the sexual health communication variables. 11.43% and 51.35% of students reported an experience of physical violence and cyber abuse in their lifetime, respectively. More students had encountered sexual violence before college (42.88%) than since the start of college (38.79%)

Consent Self-Efficacy and Sexual Communication Association

As displayed in table 2, female students had reduced odds of consistent condom use compared to male students (OR 0.89, CI 95% 0.71-1.11). Only 12.12% of Black students reported consistent condom use compared to 21.80% of White students, and this resulted in Black students having half the odds of reporting consistent condom use compared to White students (OR 0.49, CI 95% 0.29-0.84). Hispanic or Latinx students had slightly increased odds of consistent condom use (OR 1.12, CI 95% 0.92-1.53), but the proportions for each race/ethnicity group indicating consistent condom use were significantly different (p-value=0.020). A greater proportion of students with a history of vaginal and anal sex reported consistent condom use than students with no vaginal and anal sex experience, but these differences were only significant for vaginal sex (p-value<0.001). Students with a history of penetrative vaginal sex had significantly higher odds of consistent condom use (OR 22.13, CI 95% 11.35-43.14), but students with a history of anal sex did not display significantly different odds (OR 0.82, CI 95% 0.64-1.05). Only 4.17% of participants indicating sexual debut before the age of 14 reported consistent condom use compared to 21.45% of sexual onset after age 14. Younger age of sexual debut reduced odds of consistent condom use by 84% (OR 0.16, CI 95% 0.04-0.66) and history of self-reported STI diagnosis also reduced condom use likelihood by 63% (OR 0.21, CI 95% 0.21-0.63). Odds of consistent condom use decreased with less frequency of sexual health communication, with the lowest odds being reported in participants that never talked about how to use condoms (OR 0.25, CI 95% 0.17-0.37). Proportions of consistent condom use by frequency of communication about how to use a condom and HIV prevention were significantly different (p-value<0.001 and p-value=0.011, respectively). Lifetime experience of physical violence significantly lowered the odds of consistent condom use

(OR 0.67, CI 95% 0.47-0.95), but experiences of sexual violence before or since college and lifetime experience of cyber abuse did not reflect much change in condom use behavior.

Table 3 demonstrates proportions and odds of consent self-efficacy among demographic groups and sexual and IPV characteristics. Female participants were twice as likely to report high consent self-efficacy compared to male participants (OR 2.00, CI 95% 1.65-2.41). Both Black (OR 0.54, CI 95% 0.38-0.78) and Hispanic or Latinx (OR 0.68, CI 95% 0.52-0.89) students had lowered odds of high consent self-efficacy while other race students had slightly increased odds of high consent self-efficacy (OR 1.07, CI 95% 0.73-1.55). The difference in proportions of each race/ethnicity group with high consent self-efficacy were significantly different (p-value<0.001). Students indicating history of vaginal sex had heightened odds of reporting high consent self-efficacy (OR 1.30, CI 95% 1.07-1.59), but history of anal sex did not reflect a difference in odds of high consent self-efficacy (OR 1.00, CI 95% 0.82-1.23). 54.17% of students reporting younger sexual debut age reported high consent self-efficacy compared to 64.31% of students with older age of sexual debut, but this difference was insignificant (p-value=0.147). Differences in proportion with high consent self-efficacy among those with and without a history of STI diagnosis were also insignificant (p-value=0.917). Proportion of students reporting high consent self-efficacy was at least 60% for each sexual health communication risk reduction topic, but odds were significantly reduced compared to those reporting the most frequent communication. Participants that never discussed HIV prevention decreased their likelihood of reporting high consent self-efficacy by 71% (OR 0.29, CI 95% 0.15-0.58). IPV characteristics did not reflect significant difference in proportions of high consent self-efficacy between students with or without IPV experiences. Participants indicating sexual violence victimization before and since college had

minimally increased odds of high consent self-efficacy (before college OR 1.15, CI 95% 0.97-1.37; since college OR 1.05, CI 95% 0.88-1.25).

The association between consent self-efficacy scores and sexual health communication topics were weak but significant. The correlation coefficients for how to use condoms, HIV prevention, and STD prevention were 0.104, 0.098, and 0.084, respectively.

Table 1 Demographic and sexual behavior characteristic of students from the College Health Study 2015-2017, N=2253

Study Variables	N (%)	Missing
Self-Identified Gender		0
Male	608 (26.75)	
Female	1645 (72.37)	
Race/Ethnicity		9
White	1725 (76.87)	
Black or African American	132 (5.88)	
Hispanic or Latino/a	252 (11.23)	
Other	135 (6.02)	
Age		88
Mean (SD)	20.05 (1.54)	
Sexual History		
Vaginal Sex (lifetime)		8
Y	1716 (75.76)	
N	549 (24.24)	
Anal Sex (lifetime)		7
Y	530 (23.39)	
N	1736 (76.67)	
Age of Sexual Debut		520
<14	43 (2.71)	
≥14	1546 (97.29)	
STI Diagnosis (lifetime)		9
Y	142 (8.95)	
N	1445 (91.05)	
Talked About How to Use Condoms		513
Never	767 (48.51)	
1-3 Times	528 (33.40)	
4-6 Times	157 (9.93)	
7 or more times	129 (8.16)	
Talked About HIV Prevention		514
Never	1349 (77.57)	
1-3 Times	243 (13.97)	
4-6 Times	79 (4.54)	
7 or more times	68 (3.91)	
Talked About STD Prevention		513
Never	1201 (69.02)	
1-3 Times	352 (20.23)	
4-6 Times	105 (6.03)	
7 or more times	82 (4.71)	
Victimization History		
Physical Violence (lifetime)		30
Y	254 (11.43)	
N	1969 (88.57)	
Sexual Violence (before college)		0
Y	966 (42.88)	
N	1287 (57.12)	
Sexual Violence (since college)		0
Y	874 (38.79)	
N	1379 (61.21)	
Cyber Abuse (lifetime)		0
Y	1157 (51.35)	
N	1096 (48.65)	

Table 2 Proportions and unadjusted odds ratios of consistent condom use

Study Variables	N (%) Reporting Consistent Condom Use	P-value	Odds Ratio for Consistent Condom Use (95% CI)
Self-Identified Gender		0.305	
Male	137 (22.53)		1.00
Female	338 (20.55)		0.89 (0.71, 1.11)
Race/Ethnicity		**0.020**	
White	376 (21.80)		1.00
Black or African American	16 (12.12)		**0.49 (0.29, 0.84)**
Hispanic or Latino/a	60 (23.81)		1.12 (0.82, 1.53)
Other	22 (16.30)		0.70 (0.44, 1.12)
Age			
Mean (SD)	19.98 (1.49		0.96 (0.90, 1.03)
Vaginal Sex (lifetime)		**<0.001**	
Y	466 (27.32)		**22.13 (11.35, 43.14)**
N	9 (1.67)		1.00
Anal Sex (lifetime)		0.117	
Y	99 (18.71)		0.82 (0.64, 1.05)
N	376 (21.90)		1.00
Age of Sexual Debut		**0.004**	
<14	2 (4.17)		**0.16 (0.04, 0.66)**
≥14	473 (21.45)		1.00
STI Diagnosis (lifetime)		**<0.001**	
Y	15 (9.38)		**0.37 (0.21, 0.63)**
N	458 (21.98)		1.00
Talked About How to Use Condoms		**<0.001**	
Never	171 (19.28)		**0.25 (0.17, 0.37)**
1-3 Times	175 (31.59)		**0.49 (0.33, 0.72)**
4-6 Times	62 (38.04)		0.65 (0.41, 1.03)
7 or more times	66 (48.53)		1.00
Talked About HIV Prevention		**0.011**	
Never	344 (25.50)		**0.49 (0.30, 0.80)**
1-3 Times	75 (30.86)		0.64 (0.37, 1.11)
4-6 Times	25 (31.65)		0.66 (0.34, 1.30)
7 or more times	28 (41.18)		1.00
Talked About STD Prevention		0.320	
Never	315 (26.23)		0.65 (0.41, 1.04)
1-3 Times	98 (27.84)		0.71 (0.42, 1.17)
4-6 Times	30 (28.57)		0.73 (0.39, 1.36)
7 or more times	29 (35.37)		1.00
Physical Violence (lifetime)		**0.024**	
Y	40 (15.75)		**0.67 (0.47, 0.95)**
N	431 (21.89)		1.00
Sexual Violence (before college)		0.487	
Y	197 (20.39)		0.93 (0.76, 1.14)
N	278 (21.60)		1.00
Sexual Violence (since college)		0.232	
Y	173 (19.79)		0.88 (0.71, 1.09)
N	302 (21.90)		1.00
Cyber Abuse (lifetime)		0.123	
Y	229 (19.79)		0.85 (0.70, 1.04)
N	246 (22.45)		1.00

p-value<0.005

Table 3 Proportions and unadjusted odds ratios of consent self-efficacy

Study Variables	N (%) Reporting Consent Self-Efficacy	P-value	Odds Ratio for Consent Self-Efficacy (95% CI)
Self-Identified Gender		<0.001	
Male	317 (52.14)		1.00
Female	1127 (68.51)		**2.00 (1.65, 2.41)**
Race/Ethnicity		<0.001	
White	1138 (65.97)		1.00
Black or African American	68 (51.52)		**0.54 (0.38, 0.78)**
Hispanic or Latino/a	143 (56.75)		**0.68 (0.52, 0.89)**
Other	91 (67.41)		1.07 (0.73, 1.55)
Age			
Mean (SD)	20.04 (1.52)		0.99 (0.94, 1.05)
Vaginal Sex (lifetime)		**0.009**	
Y	1119 (65.59)		**1.30 (1.07, 1.59)**
N	320 (59.37)		1.00
Anal Sex (lifetime)		0.994	
Y	339 (64.08)		1.00 (0.82, 1.23)
N	1100 (64.07)		1.00
Age of Sexual Debut		0.147	
<14	26 (54.17)		0.66 (0.37, 1.16)
≥14	1418 (64.31)		1.00
STI Diagnosis (lifetime)		0.917	
Y	103 (64.38)		1.02 (0.73, 1.42)
N	1333 (63.96)		1.00
Talked About How to Use Condoms		<0.001	
Never	556 (62.68)		**0.48 (0.31, 0.73)**
1-3 Times	351 (63.36)		**0.49 (0.31, 0.76)**
4-6 Times	122 (74.85)		0.84 (0.49, 1.44)
7 or more times	106 (77.94)		1.00
Talked About HIV Prevention		<0.001	
Never	851 (63.08)		**0.29 (0.15, 0.58)**
1-3 Times	170 (69.96)		**0.40 (0.19, 0.83)**
4-6 Times	55 (69.26)		**0.40 (0.17, 0.90)**
7 or more times	58 (85.29)		1.00
Talked About STD Prevention		**0.006**	
Never	754 (62.78)		**0.47 (0.28, 0.81)**
1-3 Times	244 (69.32)		0.64 (0.36, 1.12)
4-6 Times	73 (69.62)		0.64 (0.33, 1.25)
7 or more times	64 (78.05)		1.00
Physical Violence (lifetime)		0.619	
Y	159 (62.60)		0.93 (0.71, 1.22)
N	1264 (64.20)		1.00
Sexual Violence (before college)		0.113	
Y	637 (65.94)		1.15 (0.97, 1.37)
N	807 (62.70)		1.00
Sexual Violence (since college)		0.599	
Y	566 (64.76)		1.05 (0.88, 1.25)
N	878 (63.67)		1.00
Cyber Abuse (lifetime)		0.058	
Y	720 (62.23)		0.85 (0.71, 1.01)
N	724 (66.06)		1.00

p-value<0.005

Figure 2 demonstrates the relative frequency of sexual health communication stratified by high (≥30 sexual consent score) and low (<30 sexual consent score) consent self-efficacy groups. Both high and low groups demonstrated more communication about how to use condoms (61.50% and 59.09%), but had drop-offs in communication about HIV (41.07% high, 38.44% low) and STD (47.78% high, 44.5% low) prevention. A z test was performed to determine significance of difference in proportions of sexual communication by consent self-efficacy groups, but differences were insignificant for each risk reduction topic.
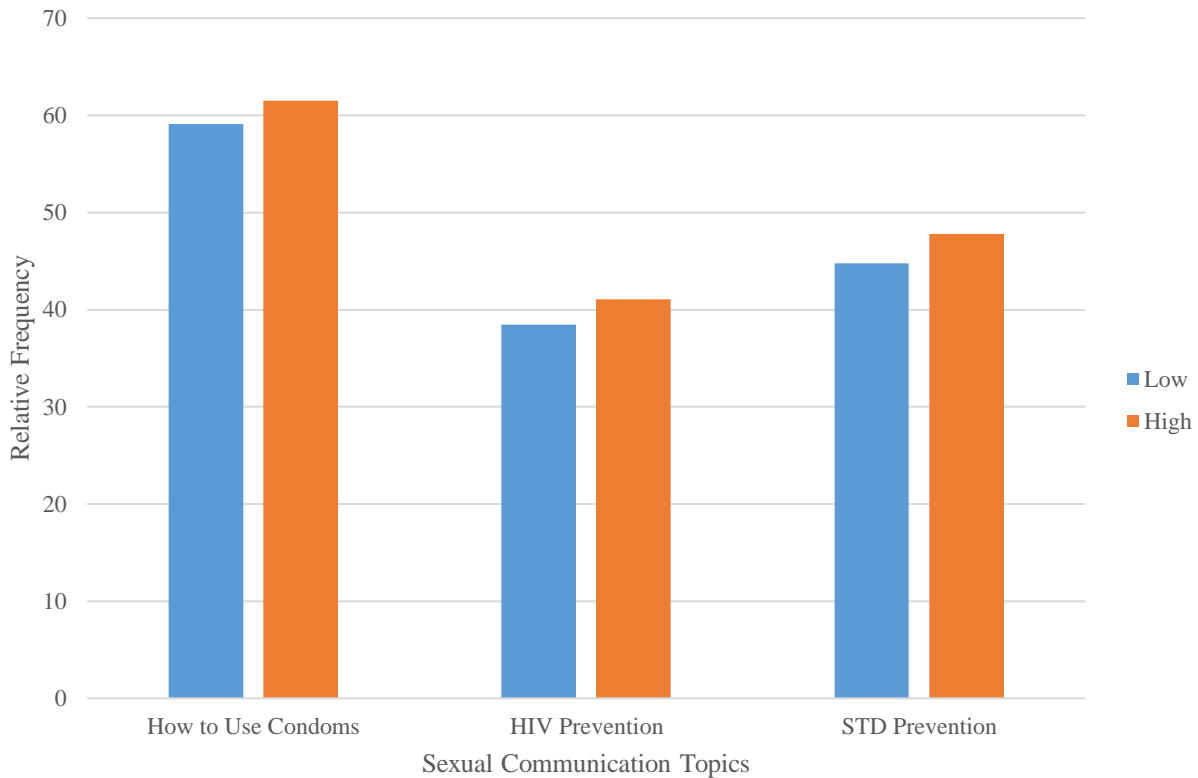

Figure 2 Proportion of students reporting at least one instance of sexual communication in past 4 months by consent self-efficacy level

Table 4 exhibits ordinal logistic regression analysis of sexual health communication in a subsample group of sexually active participants with high consent self-efficacy (n=1119). The rates of sexual health communication, however, were lower than that of the whole sample. 51.69%

indicated talking about how to use condom, 25.80% discussed HIV prevention, and 34.34% discussed STD prevention, indicating that limiting this sample to only sexually active students eliminated a fraction of high consent-self efficacy individuals that engaged in sexual communication without a history of vaginal sex. The gender, race/ethnicity, and age characteristics of this group are similar to that of the entire sample. Unadjusted odds ratios are reported in addition to odds ratios adjusted for self-reported gender and race/ethnicity.

History of anal sex and age of sexual debut did not reflect much change in unadjusted odds of sexual health communication, but when adjusted for gender and race the odds ratios are significant. There is a definite decrease in odds for all risk reduction topics with a history of anal sex (condom use AOR 0.45, CI 95% 0.37-0.55; HIV AOR 0.35, CI 95% 0.28-0.44; STD AOR 0.45, CI 95% 0.36-0.55). Age of sexual debut reflected a significance in adjusted odds of sexual communication about how to use a condom only (AOR 0.56, CI 95% 0.31-0.99). Students with a history of STI diagnosis displayed over twice the odds of talking about STD prevention in the past 4 months (OR 2.28, CI 95% 1.50-3.46), but odds were insignificant when adjusted (AOR 1.13, CI 95% 0.81-1.57). The opposite effect occurred for communication about condom use and HIV prevention. When adjusted, the reduction in odds became significant for condom use and HIV prevention communication (AOR 0.65, CI 95% 0.47-0.90; AOR 0.55, CI 95% 0.38-0.79). Participants indicating consistent condom use had increased odds of talking about how to use a condom in the past 4 months (OR 2.29, CI 95% 1.75-2.99) and HIV prevention (OR 1.42, CI 95% 1.06-1.89) when unadjusted. After adjusting, odds of STD prevention communication were half as likely with consistent condom use (AOR 0.50, CI 95% 0.41-0.62). History of any forms of IPV analyzed did not have a significant difference in odds of sexual communication between those with or without IPV experiences until adjusting for self-reported gender and race/ethnicity. Experiences

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of physical IPV, sexual violence before and since college, and cyber abuse were all associated with

significantly decreased adjusted odds for each topic of sexual health communication.

Table 4 Multivariable logistic regressions for unadjusted and adjusted odds ratios of sexual health communication in the past 4 months in sexually active students with high consent self-efficacy (N=1119)

Study Variables	High Consent Self-Efficacy	How to Use Condoms OR (95% CI) AOR (95% CI)	HIV Prevention OR (95% CI) AOR (95% CI)	STD Prevention OR (95% CI) AOR (95% CI)
	N=1119, N (%)	N=581 (51.69)	N=290 (25.80)	N=386 (34.34)
Anal Sex (lifetime)				
Y	313 (28.00)	0.96 (0.74, 1.25)	1.07 (0.80, 1.44)	1.20 (0.91, 1.57)
		0.45 (0.37, 0.55)	*0.35 (0.28, 0.44)*	*0.45 (0.36, 0.55)*
N	805 (72.00)	1.00	1.00	1.00
Age of Sexual Debut				
<14	25 (2.23)	0.62 (0.27, 1.38)	1.12 (0.46, 2.71)	0.90 (0.38, 2.10)
		0.56 (0.31, 0.99)	*0.66 (0.36, 1.23)*	*0.56 (0.31, 1.02)*
≥14	1094 (97.77)	1.00	1.00	1.00
STI Diagnosis (lifetime)				
Y	93 (8.94)	1.18 (0.77, 1.78)	1.13 (0.71, 1.80)	**2.28 (1.50, 3.46)**
		0.65 (0.47, 0.90)	*0.55 (0.38, 0.79)*	*1.13 (0.81, 1.57)*
N	947 (91.06)	1.00	1.00	1.00
Always Use Condoms (Past 4 Months)				
Y	326 (29.13)	**2.29 (1.75, 2.99)**	**1.42 (1.06, 1.89)**	1.19 (0.91, 1.55)
		1.20 (0.97, 1.48)	*0.49 (0.39, 0.62)*	*0.50 (0.41, 0.62)*
N	793 (70.87)	1.00	1.00	1.00
Physical IPV (lifetime)				
Y	144 (13.04)	0.97 (0.68, 1.37)	0.92 (0.61, 1.39)	1.10 (0.76, 1.58)
		0.65 (0.50, 0.84)	*0.56 (0.42, 0.74)*	*0.67 (0.51, 0.88)*
N	960 (86.96)	1.00	1.00	1.00
Sexual Violence (Before College)				
Y	531 (47.45)	1.03 (0.81, 1.30)	0.92 (0.71, 1.21)	1.08 (0.84, 1.38)
		0.77 (0.65, 0.92)	*0.72 (0.60, 0.86)*	*0.77 (0.65, 0.92)*
N	588 (52.55)	1.00	1.00	1.00
Sexual Violence (Since College)				
Y	467 (41.73)	1.03 (0.81, 1.31)	0.93 (0.71, 1.22)	1.17 (0.92, 1.50)
		0.81 (0.68, 0.97)	*0.69 (0.58, 0.83)*	*0.81 (0.68, 0.97)*
N	652 (58.27)	1.00	1.00	1.00
Cyber Abuse (Lifetime)				
Y	598 (53.44)	1.16 (0.92, 1.47)	0.92 (0.70, 1.20)	1.13 (0.89, 1.45)
		0.76 (0.64, 0.90)	*0.56 (0.48, 0.67)*	*0.68 (0.57, 0.80)*
N	521 (46.56)	1.00	1.00	1.00

p-value<0.05

Interaction Effects on Sexual Health Behavior

Shown in figure 4 is the interacting effect of consent self-efficacy and sexual health communication on probability of condom use using logistic regression. With increasing scores in consent self-efficacy, the frequency of communication about condom use also increased. When factoring in condom use, the probability of consistent condom use was higher in those with more

communication and higher consent self-efficacy scores. The β_1 coefficient of no communication was -0.029 (CI 95% -0.057-0.000), 1-3 times was 0.021 (CI 95% -0.116-0.053), 4-6 times was 0.031 (CI 95% -0.017-0.079), and more than 7 times was 0.040 (CI 95% -0.015-0.095).
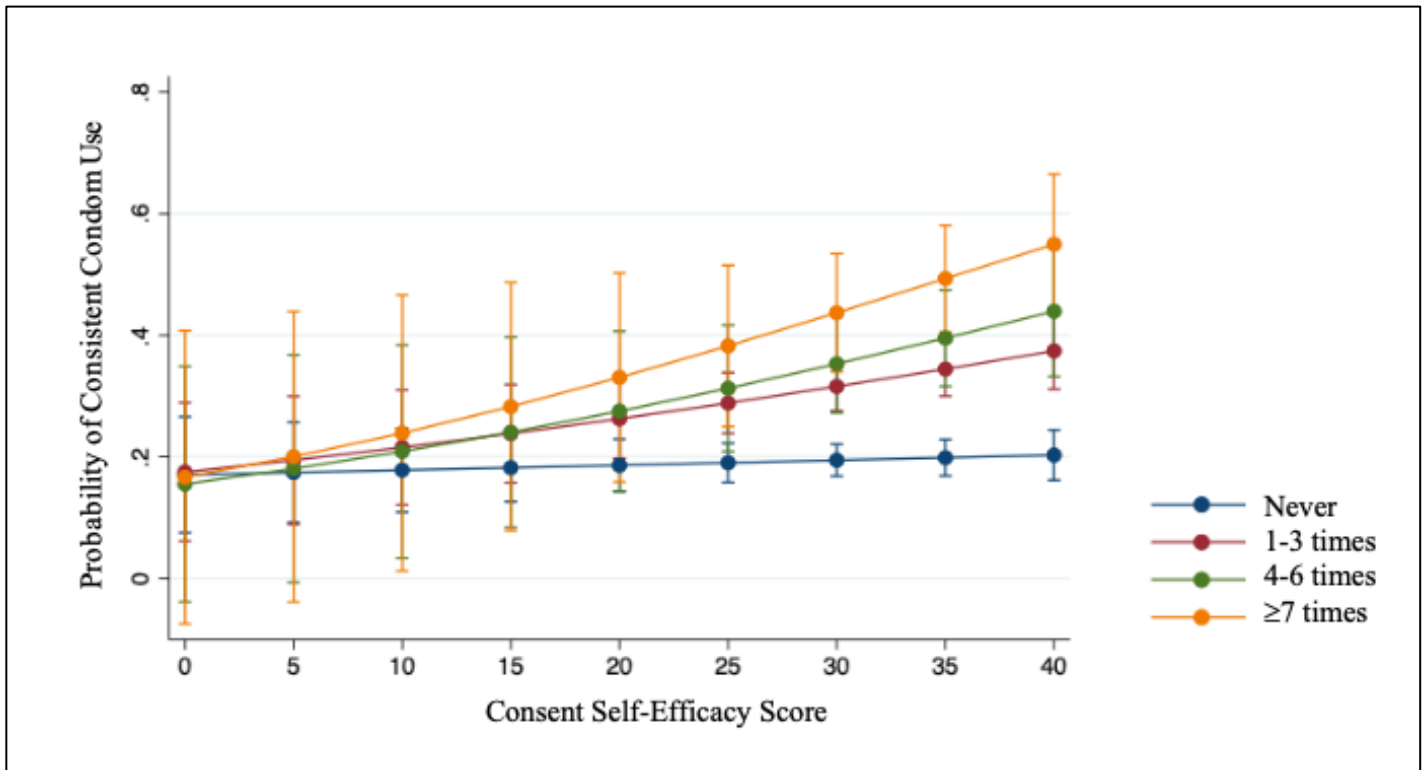
95% CI reported

Figure 3 Probability of consistent condom use with interaction effect of consent self-efficacy and condom use communication frequency in past 4 months

In examining the moderating effect of high consent self-efficacy in the relationship between condom use communication and consistent condom use, the impact was weak and insignificant (β_1=0.267, CI 95% -0.184-0.717). The moderated effect was stronger than the direct associations of high consent self-efficacy (β_1=0.189, CI 95% -0.163-0.541) and condom use

communication (β_1=-0.018, CI 95% -0.382-0.358) with consistent condom use. The unadjusted

regression coefficients were also insignificant.

4.0 Discussion

The purpose of this study was to examine the relationship of consent self-efficacy and sexual health communication and how this relationship encourages condom use. While students demonstrated generally high consent self-efficacy, they were not regularly communicating about sexual health topics. Moreover, majority of sexually active students are not consistently using condoms. Communication about using condoms corresponds with more condom use, but without communication it is evident that students are not engaging in healthy sexual practices despite exhibiting confidence in obtaining sexual consent. For most sexual and IPV characteristics, high consent self-efficacy was associated with reduced odds for sexual health communication after adjusting for self-reported gender and race/ethnicity. However, participants demonstrating more frequent communication about sexual health and higher sexual consent self-efficacy consent scores had higher probabilities of consistent condom use. This reveals the value of mutual reinforcement between sexual communication and sexual consent self-efficacy to promote subsequent condom use.

Women reported greater confidence in obtaining consent for sexual activity, but this was not significantly associated with higher levels of sexual communication or condom use. Furthermore, women are not typically the perpetrators of sexual aggression, so they are less likely than men are to be in the positions to obtain consent for sexual activity. Recent studies reveal that 23-45% of college-age men have attempted or completed sexual assault while women are three times more likely to be the victim of such violence (Baldwin-White, 2019). Even with high self-efficacy to obtain consent, women in this study were less likely to engage in conversations about sexual health than were men in this study. 48% of women reported unwanted sexual experiences

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before college and 55% since the start of college, demonstrating the uniformity of high rates of sexual aggression upon women in similar studies. Sexual violence victimization deters women from effectively communicating their prevention preferences in sexual events (Sales et. al, 2008).

In a study of adolescent and young adult females assessing the mediating role of communication skills between IPV and HIV/STI risk behaviors, participants with a history of sexual violence were more fearful of condom negotiation and had lower communication self-efficacy compared to those without a sexual violence history (Sales et. al, 2008). Perpetration of sexual aggression is associated with a decline in young women's confidence to communicate wants with sexual partners and this could contribute to engaging in less healthy sexual behaviors. Women with experiences of IPV are not as likely to seek STI/HIV testing, increasing their susceptibility for future STI and HIV acquisition (Decker et. al, 2011). This is apparent in females experiencing partner victimization having higher incidence rates of STI than those without history of partner abuse (Wingood et. al, 2001). Physical, sexual, and psychological IPV victimization are strongly associated with STI treatment and procurement, conveying irregularity of condom negotiation, communication, and use with dating violence (Buelna et. al, 2009). The relationship between gender-based violence and prevalence of STIs has been found to be mediated by more frequent risky sexual behaviors illustrating the demand for more inclusive sexual violence and sexual health-related prevention programming that involves education for young adults (Salazar et. al, 2009).

The imbalance of sexual relationship power dynamics may also explain the absence of assertiveness in communicating about sexual health for women. Teitelman et. al (2008) observed more inconsistent condom use in young Black women exposed to partner violence, and although there was not a direct correlation between sexual control in relationships and condom use, they did

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identify an inverse relationship in IPV experiences and sense of control in sexual relationships. Consequently, IPV may have a mediating effect between sexual relationship power and condom use. Young women's perceived control within the relationship with their sexual partners as a result of societal and cultural gender norms may govern their intention to communicate about sexual health. Similar to relationship power, the notion of self-silencing, or the passivity associated with putting others' needs before your own, also demonstrated a limiting effect on condom use, particularly for Black women (Stokes & Brody, 2019). In repressing one's own feelings or desires to comply with partners' wants, women may relinquish their sexual decision-making potential for the sake of prolonging the relationship (Stokes & Brody, 2019). Even with the purpose of discussing or actively using condoms, self-silencing as a strategy for maintaining partner's wishes (whether real or perceived) may account for the discrepancy between women's high consent self-efficacy and lower tendency to not communicate about sexual health.

A qualitative study of women exposed to IPV were interviewed about their hesitancies to use PrEP (Willie et. al, 2019). The lack of sexual decision-making power was a common theme shared among the women because those power tensions manifested as fear of retaliation or mistrust from partner (Willie et. al, 2019). Hence, the sexual relationship power disparity constitutes as a barrier to accessing and using PrEP and gives insight to reasons women are less likely to consistently use condoms. This is apparent in the finding that odds of testing positive for STIs were almost 4 times greater for girls that perceived less relationship power compared to females that perceived having more relationship power (Raiford et .al, 2013).

A number of adverse childhood experiences (ACE), such as emotional neglect, sexual abuse, and bullying, are linked to earlier sexual debut and STIs (Kidman & Kohler, 2019). In addition, the accumulation of ACEs has a dose effect on sexual risk behaviors in that the more

ACEs experienced the more likely individuals are to test positive for STIs, get tested for HIV, engage in sex at a younger age, and have multiple sexual partners (Kidman & Kohler, 2019). In this cohort, participants reporting younger sexual debut were almost 90% less likely to always use condoms than those initiating sex at a later age. Young sexual debut can be attributed to various detrimental childhood exposures, and these experiences continue to manifest throughout development as reflected by more inconsistent condom use and less self-perceived competence in obtaining sexual consent.

As mentioned previously, communication about condom use led to more consistent condom use in sexual interactions (Widman et. al, 2018). In considering the frequency of communication as it affects condom use, odds of regular condom use significantly increased with more communication about condom use and HIV prevention, but only a small proportion of students reported engaging in such discussions. Further, students with a history of positive STI diagnosis reported over twice the odds to have discussed STD prevention in the past 4 months. Having affirmative diagnosis generates more cautious actions as to prevent future infections. Taquette and Souza (2019) interviewed youth in Brazil living with HIV and demonstrated that youth would be more comfortable initiating conversations about condom use and HIV if sex was a normalized topic. Some teenagers stated that parents and schools are not straightforward in discussing sexual health subjects and the language used is not youth-friendly or interesting enough for the teens to comprehend and apply lessons in their personal relationships (Taquette & Souza, 2019). Their positive status fostered more preparedness in healthy sex, such as always being in possession of condoms and knowledge of HIV transmission, having been experienced a lasting outcome of unprotected sex. A positive diagnosis may also stimulate a stronger sense of personal duty to disclose health conditions that impact the self and sexual partners (Henny et. al, 2019). A

similar sentiment was observed in Latina sexual minorities (lesbian, bisexual, and queer women) in that they stated valuing their sexual health and taking responsibility for getting tested regularly for HIV and STIs, but not necessarily disclosing their status to partners (Santos et. al, 2017). However, history of STI or HIV does not assure status disclosure to partners due to the stigma associated with HIV and STI infections. Some literature suggests that PLWHIV, particularly MSM, inconsistently communicate their HIV status, and MSM with negative status are more likely to engage in HIV communication (Haas et. al, 2019).

Regardless of history of diagnosis, HIV and STIs can be a sensitive conversation, as revealed in the lack of communication in this sample, but there are helpful gateways to navigate these intimate talks. Detecting social cues and using humor or physical/social media, like billboards or TV shows, to bring up HIV prevention or status with partners lightens the conversation (Henny et. al, 2019). Partners could potentially be offended by or reject the suggestion of discussing HIV or STIs, but using nonjudgmental and passive language urges an open conversation and relieves pressure for sexual partners (Henny et. al, 2019). Rhetoric is crucial in communicating about sexual health because HIV and AIDS especially have historical backgrounds of pejorative connotations that continue to contribute to the present negative reputations. Discriminatory and judgmental encounters between PLWHIV and health care professionals discourages individuals from seeking care or further communicating about their status in general (Chambers et. al, 2015). The nature of sexuality and sexual health is culturally sensitive, but the corresponding stigma is an added source of complexity that if mitigated could give access to more candid conversations that promote healthy behaviors and relationships. Addressing the delicacy surrounding sexual matters by normalizing sexual health conversations could alleviate some of the uncomfortability of engaging in sexual communication with partners.

As a sample, students demonstrated generally high self-efficacy to obtain sexual consent, but scores did vary based on frequency of sexual health communication. Though young adults seem to have an evident understanding of the significance of obtaining verbal sexual consent, it is unreliable to assume that knowledge of consent will reflect verbally asking for consent and resulting interpretation of verbal and nonverbal cues to proceed with sexual behaviors (Goodcase et. al, 2019). Obtaining sexual consent may be enacted as a closed-question rather than an open discussion, and this one-sided action may hinder the opportunity to divulge in various other sexual health topics. The action of obtaining consent is more than receiving a yes or no response. The complexities of consent are conditional upon gender classification, relationship status of partners engaging in sexual behaviors, and the actual sexual activity needing consent (Marcantonio et. al, 2018). It is also not a matter of offering a verbal response because often nonverbal cues must be taken into consideration (Marcantonio et. al, 2018). Consent should be conceptualized as a gateway to further communicate about STI history, PrEP use, testing frequency, contraceptive methods, and any other relevant sexual health matters rather than a simple approval or rejection. The results demonstrate that this theory is not being supported by students' overall self-perceived competence in getting consent and absence of further communicating about HIV/STIs and condom use with partners.

High consent self-efficacy or sexual communication independent of each other was not sufficient to encourage consistent condom use, but both qualities provide greater chances of healthy sexual practices. Correlations between consent self-efficacy and frequency of sexual health communication were weak but positive and significant, demonstrating that there is some association between the variables. There was no significant difference in sexual communication prevalence between low and high consent self-efficacy groups. Despite these conflicting findings

that consent self-efficacy and sexual health communication do not directly influence each other, when they are occurring in conjunction they positively influence condom use as mutual reinforcement.

4.1 Public Health Implications

With STIs and sexual violence perpetration consistently being public health burdens for young adults, it is imperative to find useful modalities of healthy sex promotion. Making campus health sexual and reproductive health services more obvious and accessible to students in combination with offering sexual health education as part of sexual violence prevention programming on college campuses is the most convenient and widespread solution to providing information to students. Consent should be framed as a healthy discussion of sexual health decision-making and preferences to encourage more transparent communication between sexual partners. In practicing open conversations regarding contraceptive use and STI/HIV prevention, young adults should feel more comfortable expressing their sexual health concerns and partake in behaviors that protect their health. Especially for individuals with a history of violence or abuse, communication can be daunting and dissuade important conversations like protection for sexual activity and STI/HIV status disclosure (DiClemente et. al, 2009).

Incorporating sexual health education into sexual violence prevention programming on college campuses offers a more comprehensive and informative strategy for addressing the commonness of IPV and STI/HIV procurement in young adults. The development of an integrated curriculum that is delivered in a manner receptive to students, like through social media platforms or in a setting that fosters discussion rather than formal schooling, would make students more

aware of the common presence of sex-related detriments and the resources that are available to them. They may feel more obligated to take responsibility over their personal sexual health including regular STI testing and consistent condom use with more awareness. Young adults do have some control over their sexual behavior choices with partners, but without proper knowledge of what is important to discuss and the most appropriate preventative strategies individuals cannot engage in practices to reduce the burdens on their population. Campus messaging that focuses on consent seems to be successful as demonstrated in students' self-perceived ability to obtain sexual consent, so introducing sexual health communication to programming could further reinforce healthy sexual behaviors.

There is certainly the possibility that inserting other sexual health subjects to the sexual consent dialogue, like STI history and sexual history, could influence young adults' self-efficacy in obtaining consent and following through with sexual activities. This underlines the importance of reducing stigma associated with sex. Individuals' self-efficacy in obtaining consent should not be impacted by proposing other sexual topics because it is all interconnected, so programming enforcing communication with sexual partners will bolster competence in sexual discussions.

4.2 Limitations

There were several limitations to this study. Students were recruited from on campus health care facilities, thus convenience sampling limited participation to individuals that use and are able to access services. There was a small sample size of sexual minorities with the majority of students identifying as heterosexual (91.8% females, 89.7% males), therefore sexual characteristics and behaviors were not separately evaluated. Due to the majority female sample and lack of sexuality

diversity, these results may not be generalizable to the young adult population. Further sensitivity analysis should be performed to understand the experiences and statistics of sexual minorities.

Some of the variables analyzed were also a limitation. A definition of sexual consent was not provided in the survey, so the concept of sexual consent was left up to participant interpretation. Confidence in obtaining consent was assessed, but analysis of general understanding and actual experience of asking for consent was not performed. This assumes that the participants possess fundamental knowledge of sexual consent and regard it with similar working definitions. Condom use and sexual health communication data were only assessed from the past 4 months and limited to specifying incidence based on recollection of specific number of times, thus subjecting responses to recall bias. Lifetime physical, sexual, and cyber victimization were surveyed, but emotional and psychological abuse were not included. Psychological aggression by an intimate partner occurs in nearly 50% of men and women, therefore the absence of this data may affect these findings (National Domestic Violence Hotline, 2019). Several variables, namely those describing sexual behaviors, have considerable missing data due to the voluntary response methodology. Those experiences are not accounted for and could alter outcomes. STI history was reported based on verbal reception of positive diagnosis from a health care professional, and it is unknown which STI participants acquired. Since communication about HIV was evaluated, it would be beneficial to know the prevalence in the sample.

Lastly, little is known regarding confounding factors of sexual consent self-efficacy, sexual health communication, and condom use frequency. This limited the statistical analysis performed and results may have been affected by unidentified confounding variables. Due to rudimentary statistical knowledge, more advanced analyses of the mediating and moderating role between variables were not assessed. This limited further examination of the second hypothesis regarding

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how the relationship between sexual consent self-efficacy and sexual health communication impacted condom use.

5.0 Conclusion

While college students report general self-efficacy in obtaining sexual consent, the conversation prior to sexual activity did not include other sexual health matters. Women especially were not engaging in open discussions regarding HIV/STI prevention or condom use. Further, women were not as likely to regularly use condoms with their sexual partners. Fear of condom negotiation, self-silencing, and relinquishing sexual decision-making to satisfy partners are among some of the reasons women may not consistently communicate about sexual health. Talking about condom use and HIV/STI prevention enhances confidence in obtaining consent and is more likely to translate into healthy sexual behaviors such as condom use.

Sexual violence prevention programs on college campuses use consent as their central lesson in managing sexual aggression perpetration, but tend to present communication around consent strictly as getting permission rather than a portal to further discuss sexual health. In overlooking education on negative health outcomes and prevention strategies, students are not receiving additional advocacy to have candid sexual conversations with partners outside of obtaining consent. Campuses are not taking advantage of the opportunity to use sexual assault prevention programming to educate on related sexual health matters. HIV and STIs have derogatory labels and even with attempts to reduce stigmatization are uncomfortable for individuals to talk about. For the most part, young adults feel obligated to regard their own sexual health and take responsibility for their sexual behaviors, healthy or not, but personal consideration does not constitute sufficient motivation to communicate about sensitive topics. With rates of STIs steadily increasing in the adolescent and young adult population it is necessary to exercise all effective methods to educate youth on positive sexual health, and this demands societal tolerance

of expression of sexuality and healthy sexual behaviors. Campus-wide reduction strategies addressing sexual misconduct and sexual violence should integrate the sexual and reproductive health intricacies that accompany such perpetration. Removing the shame surrounding HIV/STIs and imploring healthy conversations will hopefully inspire young adults to vocalize their sexual concerns and subsequently participate in protected sexual activities.

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