FACTORS INFLUENCING SEXUAL VIOLENCE INTERVENTIONS: USING THEORY TO UNDERSTAND RELATIONSHIPS OF RAPE MYTH ACCEPTANCE, BYSTANDER INTENTIONS, MENTAL HEALTH, DRINKING, RISKY SEXUAL BEHAVIOR, AND SEXTING AMONG UGANDAN UNIVERSITY STUDENTS

by

ALICIA C. MAY

(Under the Direction of Tamora A. Callands)

ABSTRACT

Sexual violence is a public health concern that has been plaguing students attending universities around the globe. The risk factors of sexual violence have no borders; they are the same in every country, in every university, from the United States to Uganda. The acceptance of rape myths, poor mental health, drinking, and sexting have been correlated with attitudes of intention to intervene in a potentially sexually violent act and engaging in risky sex behaviors. This dissertation aims to use the constructs of the theory of planned behavior and social cognitive theory to understand the behaviors and attitudes of students who attend Makerere University in Kampala, Uganda, on the factors associated with interventions addressing sexual violence. Two studies were conducted, first understanding the predictors of a person's attitudes towards intervening and second, the relationship between sexting, drinking, living on campus,

and engagement in risky sex behaviors. Using self-reported data from a survey that contained all of the variables for both studies, 400 students, 200 men, and 200 women at Makerere participated in the study. For study one, a multivariate regression was used to determine overall predictors of intention to intervene were assessed. Significant factors in the model included accepting rape myths and having higher rates of depression. To assess gender differences, an independent samples *t*-test revealed that men accepted rape myths, had more alcohol use, and reported greater symptoms of depression than women. In the second study, a binary logistic regression was performed to predict engaging in risky sex behaviors using sexting attitudes and behaviors, alcohol use, and living on campus. This model was not significant. There were gender differences that provided more insight into the relationship between these sexual violence risk factors. The majority, almost 84% of the students in the population, were not problem drinkers. However, women who did report alcohol use were more likely to have favorable attitudes towards sexting and engaging in risky sex behaviors. Men who reported alcohol use had more favorable attitudes towards sexting. These studies provide an insight into the attitudes and behaviors of the students attending one of Uganda's most prestigious universities. This study's findings should help tailor interventions for the students at Makerere University.

INDEX WORDS: Sexual violence, intervention factors, rape myth acceptance, bystander intentions, mental health, drinking, risky sexual behavior, sexting, Uganda, University students

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by

ALICIA C. MAY

B.S., Kennesaw State University, 2010

M.P.H., Georgia State University, 2017

A Dissertation Submitted to the Graduate Faculty of The University of Georgia in Partial Fulfillment of the Requirements for the Degree

DOCTOR OF PHILOSOPHY

ATHENS, GEORGIA

2025

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ALICIA C. MAY

Major Professor: Tamora A. Callands
Committee: Nathan Hansen
Monica H. Swahn
Juliet N.Sekandi

Electronic Version Approved:

Ron Walcott
Vice Provost for Graduate Education and Dean of the Graduate School
The University of Georgia
May 2025

DEDICATION

I dedicate this dissertation to all the incredible and amazing mentors who have championed me through my academic career. Without all of you, I would not have had the courage to get to where I am today. I will always be humbled by the doors you have opened for me and the tables you have made space for me to be seated.

ACKNOWLEDGEMENTS

I want to acknowledge the following people for their support and pushing me to get this degree.

First, I want to thank Dr. Dorothy Marsil. She was the first person ever to see my potential in research and public health. I remember sitting in her undergraduate research methods class and saying in front of the class that you needed my personality to be in her research lab. That was the very first day of the rest of my life. Dorothy, thank you for seeing me and for your fantastic mentorship. You truly changed my life. I want to thank Dr. Corinne McNamara. You introduced me to the world of interpersonal violence. You showed me the importance of research and how data can make a huge impact on such a personal topic. I am beyond grateful for the mentorship that I received from both of you during my time at Kennesaw State University; you gave me the strongest foundation to build on.

I want to thank Dr. Monica Swahn. I cannot find the words to express how much you mean to me professionally and personally. You changed my life in so many prolific ways. You opened my eyes to the world of global health and showed me the amazing world of working outside of your comfort zone. Spending weeks schlepping the slums with you and Jane are still some of the most incredible times I have ever had. You always encouraged me to be the best I could be and guided me to opportunities to grow. I would never have looked at UGA for a PhD if you had not suggested that I talk to Dr. Sekandi. Your mentorship and friendship have meant the world to me. The rooms you have invited me into humble me, and our conversations leave me in awe of the potential you have seen in me. I have been so grateful to see how much you achieved;

it is truly inspiring. Thank you for always being there for me, including me, and all the ways you have changed my life. Because of you, I have not one but two advanced degrees!

I want to thank my amazing CDC mentors. Dr. John Iskander, Dr. Phobe Thorpe, and Dan Kidder. I learned so much from our time together. You challenged me to think and push myself to develop more than I thought possible.

Thank you to my committee, Dr. Nate Hansen, Dr. Juliet Sekandi, and Dr. Tamora Callands. Getting a PhD through a pandemic was difficult, especially with my global health focus. I want to thank Dr. Hansen for all his insight into making my analysis stronger and more meaningful. To Dr. Sekandi, thank you for letting me use her data to develop this dissertation and keep my global health focus. Also, I thank Dr. Callands for allowing me to work with her and keeping me on track. We have gone through a lot over the past five years, and I am grateful that we have shared so much of our lives with each other.

I want to thank my family. My Mom and Dad who supported my decision to get a PhD later in life. My Brother for believing in me, even when I didn't believe in myself. To my sister-in-law for checking in and being a constant cheerleader through this process. While this process may be a different language to y'all, you were always there, and I thank you for that. I love y'all very much.

I want to thank my friends for all their support. To Anita and Kandyce, thank you for your help and support. Thank you for checking in on me and advising me through this process. I would not have been able to get through it without y'all. To Autumn for letting me vent and celebrate all the little milestones with me. To Ginny, thank you for making Athens feel more like home and introducing me to some fantastic friends. Your excitement and enthusiasm to

watch me succeed have been so amazing. To Stefanie Anderson, my dear friend who has been with me through CDC and UGA. Our Thursday check-ins kept me motivated and gave me that push I needed to get this to the finish line. To Lauren, Bobby, James, Stephanie, Marlinda, Krista, and Sarah, your friendship has sustained my sanity and given me the drive to get this degree. Over the past 25 years, you have been there to watch me get all three of my degrees and share so many milestones. I am so lucky that I have you as my forever friend family. Leaving y'all in Atlanta to move to Athens for this degree was one of the hardest things I have ever done, and when I needed someone, you were quick to come to Athens and give me the support I needed. I love y'all more than you will ever know. Lastly, to my soulmate, Rob Bullard. Since we were 13, you have been by my side. You have seen me at my lowest lows and highest highs. You have seen me grow and change over the past 30 years. You have been there and watched my dreams change and my life change. We can both agree that we never saw me becoming Dr. May in 8th grade. You have been the person I relied on the most, cheered me on, and kept me in check. You are my forever family, and I am so glad I have you as my best friend.

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CHAPTER 1

INTRODUCTION

Brief Overview

Sexual violence is common at universities, not just in the United States but globally, and affects a disproportionate number of women (Arnold et al., 2008; Fisher et al., 2000; Iyanda et al., 2021; Philpart et al., 2009; Schuster et al., 2016; Wellum et al., 2023). Globally, the prevalence of sexual violence is estimated to be 17.5% among women and 7.8% among men (Steele et al., 2023). A meta-analysis of sexual violence among university students in 22 countries worldwide reports that prevalence was highest in Africa (16.3%), compared to South America (13.9%) and Asia (4.2%) (Pengpid & Peltzer, 2016). A meta-analysis of universities in higher education found that female students in the African region reported the highest prevalence of sexual violence 25.9%, followed by female students in the United States (17.9), then European and Western Pacific region female students (15.6%) (Steele et al., 2023).

Risk factors for campus-related sexual violence are similar for university students regardless of region (Arnold et al., 2008; Pengpid et al.; Schuster et al., 2016). Common risk factors for sexual violence victimization include prior sexual victimization, substance use (specifically alcohol use), rape myth acceptance, low socioeconomic status, and engaging in risky sexual behaviors. Risk factors for sexual violence perpetration are the same among university student populations. The most salient factors include identifying as male, substance use (specifically alcohol), rape myth acceptance, hostility towards women, adherence to masculine gender norms,

risky sexual behaviors, and peer approval of sexual violence (Black, 2011; Blanco et al., 2022; Bonar et al., 2022; Gupta et al., 2019; Iyanda et al., 2021; John et al., 2018; Kalichman et al., 2005a; Kalomo et al., 2020; Muluneh et al., 2021). Risk factors for experiencing sexual violence were identified using a meta-analysis of studies in over 20 sub-Saharan African countries. Study participants were predominately women aged 15-24. Factors included education status, specifically lower education levels, substance use, age, history of child abuse and parental abuse, engaging in risky sex (multiple partners, condom-less sex, HIV status, STI status, and age of sexual debut), prior sexual violence victimization, living arrangements in early marriage, age of marriage, socio-economic status (SES), being employed, food insecurity, and partners education status (Black, 2011; Blanco et al., 2022; Muluneh et al., 2021).

A form of sexual violence that is emerging is technology-facilitated sexual violence. Technology-facilitated sexual violence (TFSV) is another form of sexual violence and is defined as "any sexual violence occurring through the use of technology" (Powell, 2020). The behavior of sexting has been associated with TFSV (Patel & Roesch, 2020). Sexting is defined as "the sending of sexually explicit messages or images by cellphone" (Brown, 2020). The prevalence of TFSV was assessed in a global meta-analysis using 25 articles, and it found that between seven and 17% of participants have been victimized by sexting behaviors (Patel & Roesch, 2020). A meta-analysis by Mori et al. found that gender differences exist between men and women when it comes to sexting. Women are more likely to report having their sexts forwarded without their consent and are more likely to report harassment (Mori et al., 2020). The consequences for those who have experienced TFSV are the same as those who have experienced physical or sexual assault, which include depression, anxiety, decreased self-esteem, and reports of PTSD (Patel & Roesch, 2020; Powell, 2020).

Study Purpose

The purpose of this dissertation is to understand risk factors associated with sexual violence interventions for students in Uganda on two related topics discussed above: campus-related sexual violence and technology-facilitated sexual violence. Using the data from a survey of 400 students at Makerere University, the relationships of factors that influence sexual violence will be explored. Each study was developed into separate chapters modeled after a manuscript for submission to a peer-reviewed journal.

Significance and Specific Aims of Paper One

The first manuscript focuses on understanding the risk factors (i.e., alcohol use, acceptance of rape myths, and depression symptomology) associated with the intention to intervene in the event of sexual violence among university students in eastern Africa. Specifically, the research question asks does alcohol use, acceptance of rape myths, and depression symptomology predict a person's attitudes toward intervening in a situation that could result in sexual violence? It is hypothesized that students who report more depression symptoms, who are more accepting of rape myths, and who report more alcohol use will be less likely to intervene in an attempted sexual assault compared to those who report fewer symptoms of depression, who are less accepting of rape myths, and who report less alcohol use.

The second aim of this study will be to assess if gender differences exist between women and men when looking at the intention to intervene, rape myth acceptance, and depression symptomology. The hypothesis is that women will be more likely to intervene in the event of a potentially violent act, will reject rape myths, will be fewer problem drinkers, and will have less depression symptomology than the men in this study. Additionally, we will assess if gender is acting as a moderator for the predictor measures. Understanding these relationships will be

instrumental in the development of interventions to reduce sexual violence among universities in Eastern Africa.

Theoretical Background of Paper One

The theory of planned behavior is a value expectancy theory developed by Ajzen in 1991 (DiClemente et al., 2013). This theory is based on the theory of reasoned action but adds the construct of perceived behavioral control (DiClemente et al., 2013). See Figure 1 for the whole model of the theory of planned behavior (Kan & Fabrigar, 2017). The constructs of the theory of planned behavior are behavioral beliefs or attitudes toward the behavior, normative beliefs or subjective norms, and control beliefs or perceived behavioral control.

Two sets of competing factors guide this model: facilitating and inhibiting factors. Facilitating factors are actual or perceived external factors that increase a person's likelihood of following through with the behavior. An example of a facilitating factor would be a person's belief that intervening will stop a sexually violent event. Inhibiting factors are also external and impede a person's likelihood of following through with a behavior. An example of an inhibiting factor is if a person believes that intervening will make them lose friends, as if they think that their friends accept rape myths.

Perceived power is defined as the strength of the facilitating and inhibiting factors when deciding to adopt a behavior (DiClemente et al., 2013). Because of a person's perceived power over the facilitating and inhibiting factors, all three of the constructs are influenced by each other, which is why we see the directional arrows in the model. The constructs of behavioral and normative beliefs affect a person's intention to perform a behavior. According to Ajzen & Fishbein, a person will appraise two constructs before a behavior is performed: their attitude towards the behavior and the social influence of performing the behavior (Ajzen, 1991). While

two constructs are being appraised, perceived behavioral control directly influences the follow-through of the behavior. This model explains the relationships between mental health/depression and rape myths; and the influences of these variables on intention to help in the context of sexual violence.

Behavioral Beliefs and Attitudes Towards the Behavior

Behavioral beliefs are beliefs a person holds about performing a behavior (DiClemente, 2013). This means that a person will have a cognitive appraisal that performing the behavior will lead to either a positive or negative outcome. For a person to intervene in the event of sexual violence, the person must appraise that they have favorable attitudes toward performing the behavior. For this study, rape myth acceptance will be assessed to determine attitudes toward intervening in the event of a sexual assault. The rape myth acceptance scale has been a tool to assess a person's attitudes toward sexual violence. Factors associated with positive attitudes towards rape myths include being male, pledging for a fraternity or sorority, being an athlete, and people who have not received rape education, and lastly, those who did not know anyone who had ever been sexually assaulted (McMahon, 2010). Factors associated with negative attitudes toward rape myths include prior victimization, victim empathy, and reporting lower rape myth acceptance (Obierefu & Ezeugwu, 2017). Research examining this construct has demonstrated that an overwhelming number of university students, predominately in America, believe that intervening is important and report the intention to follow through with this behavior (Banyard, 2008a; Hoxmeier et al., 2018; Kania & Cale, 2021).

Normative Beliefs or Subjective Norms

Simultaneously, as a person is cognitively appraising their beliefs towards a behavior, the theory of reason action states that they are also appraising the outcomes of performing the behavior among their peers. Normative or subjective norms are "motivated by their perception of what is considered normative and acceptable to others" (DiClemente, 2013). For a person to intervene in the event of sexual violence, the person will also believe that peers and others would support this behavior. The bystander effect scale is a tool that measures a person's intention to intervene if they think any form of sexual violence may occur and will be used in this study to assess subjective norms as they relate to the behavior of intervening. There is some research to suggest that there is a normative belief that intervening is viewed as positive among respected peers; however, this research is limited (Amar et al., 2014; Bennett et al., 2017; Nancy et al., 2019; Zelin et al., 2019).

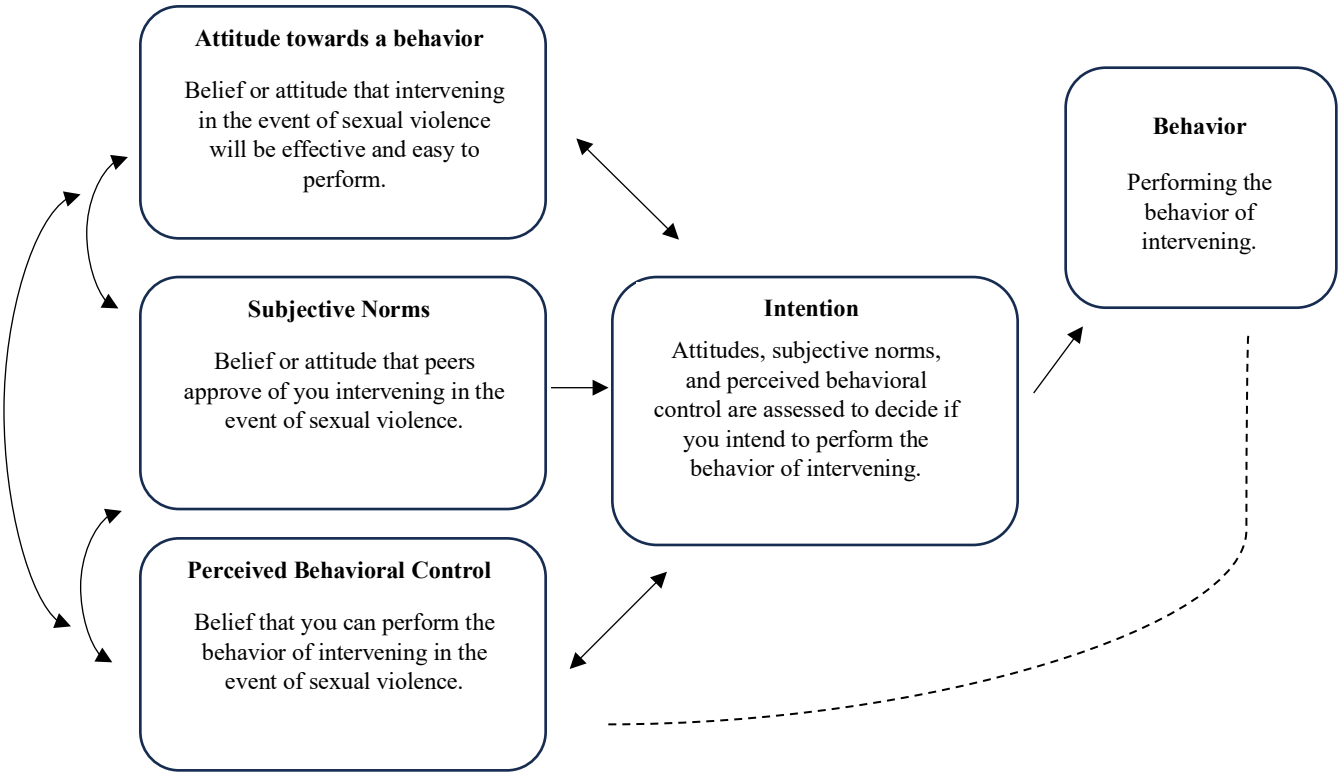
Perceived Behavioral Control

Perceived behavioral control is based on self-efficacy. Bandura first developed the construct of self-efficacy in 1977 and defined it as assessing a person's confidence in their ability to perform a task (Bandura, 1997, 1999). While self-efficacy is the basis for this construct, this construct is more complex. Bandura explained that having knowledge and skills to perform a health behavior may not be enough of a cognitive push to move into action; a person must believe that they can perform the behavior and will be more likely to act. Banyard, who created the bystander intervention scale, found that self-efficacy to intervene was a significant predictor in performing the behavior (Banyard & Banyard, 2008; Banyard & Moynihan, 2011). A longitudinal study assessing the effects of bystander intervention supports Bandura's theory. The researchers found that knowledge alone was insufficient for people to intervene; self-efficacy acted as a moderator in the models, meaning that this construct is necessary for a person to

proceed with the behavior (McMahon et al., 2015). This construct will be assessed using the bystander scale in the proposed study.

The acceptance of rape myths and persons' perceived behavioral control to intervene has been assessed and is sufficient to determine a person's knowledge, attitudes, social norms, and self-efficacy to predict the intervening behavior (Aborisade, 2016; Amar et al., 2014; Banyard, 2008a; Banyard & Moynihan, 2011; Finchilescu & Dugard, 2021; Katz & Moore, 2013; Martini & De Piccoli, 2020; Mayhew et al., 2018; McMahon, 2010; Williams et al., 2021; Zelin et al., 2019; Zinzow et al., 2018). The overwhelming finding is that when a person reports less rape myth acceptance, they are more likely to intervene in the event of sexual violence. Perceived behavioral control and self-efficacy to perform the behavior are essential to developing an intervention to perform the behavior of intervening.

FIGURE 1: THE THEORY OF PLANNED BEHAVIOR



Significance and Specific Aims of Paper Two

The second paper focuses on understanding the association between sexting, where you live during your time at university, and risky sexual behaviors among university students in eastern Africa. While sexting is not as prevalent among students attending university in Africa, data from universities in the United States and Europe do show that sexting is on the rise and may increase in the future among students in Africa (Ayinmoro et al., 2020; Makgale & Plattner, 2017; Mori et al., 2020). Given the rise of sexting, this research question asks if alcohol use, sexting behaviors and attitudes, and where you live during your time at university predict engaging in risky sexual behavior (i.e., inconsistent condom use, multiple partners, and using alcohol at the last sexual encounter). It is hypothesized that students who have favorable attitudes towards sexting, engage in sexting behaviors, live on campus, and have higher levels of alcohol use will engage in risky sex behaviors compared to those with less favorable sexting attitudes, do not engage in sexting behaviors, drink alcohol less, and do not live on campus.

The second aim of this study is to understand if there is a difference between women and men when assessing the relationship between alcohol use, sexting behaviors and attitudes, and where you live during your time at university can predict engagement in risky sex. The hypothesis is that gender differences will exist on the measures of having favorable attitudes towards sexting, engaging in sexting behaviors, living on campus, and having higher levels of alcohol use and engaging in risky sex behaviors compared to those with less favorable sexting attitudes, those who do not engage in sexting behaviors, drink alcohol less and do not live on campus.

Theoretical Background of Paper Two

The Social Cognitive Theory

Using the social cognitive theory, this study will aim to understand the context of the environment and behavior of a person and how this reciprocal relationship can explain a person's relationship with sexting and risky sexual behaviors. The social cognitive theory was developed by Bandura in 1986 and uses the constructs of knowledge, perceived self-efficacy, outcome expectations, goal formation, and sociocultural factors (Bandura, 1986). This theory helps explain how being in a university environment can influence a person's likelihood to engage in sexting behaviors and how those behaviors can lead to engaging in risky sexual behaviors. The most effective model for this research is the reciprocal triadic causation model, see Figure 2 (Kinley, 2013). This model accounts for three specific constructs: environment, behavior, and person.

Environment

The university setting is a unique environment for many university students. This is the first place where most young adults are responsible for themselves and their behaviors without the supervision of caregivers. Students attending universities in sub-Saharan Africa report both engaging in sexting behaviors and enjoying these behaviors (Ayinmoro et al., 2020; Makgale & Plattner, 2017; Mukonyo, 2020). The university environment provides students the autonomy to conduct themselves how they choose, which includes both sexting and risky sex behaviors.

Behavior

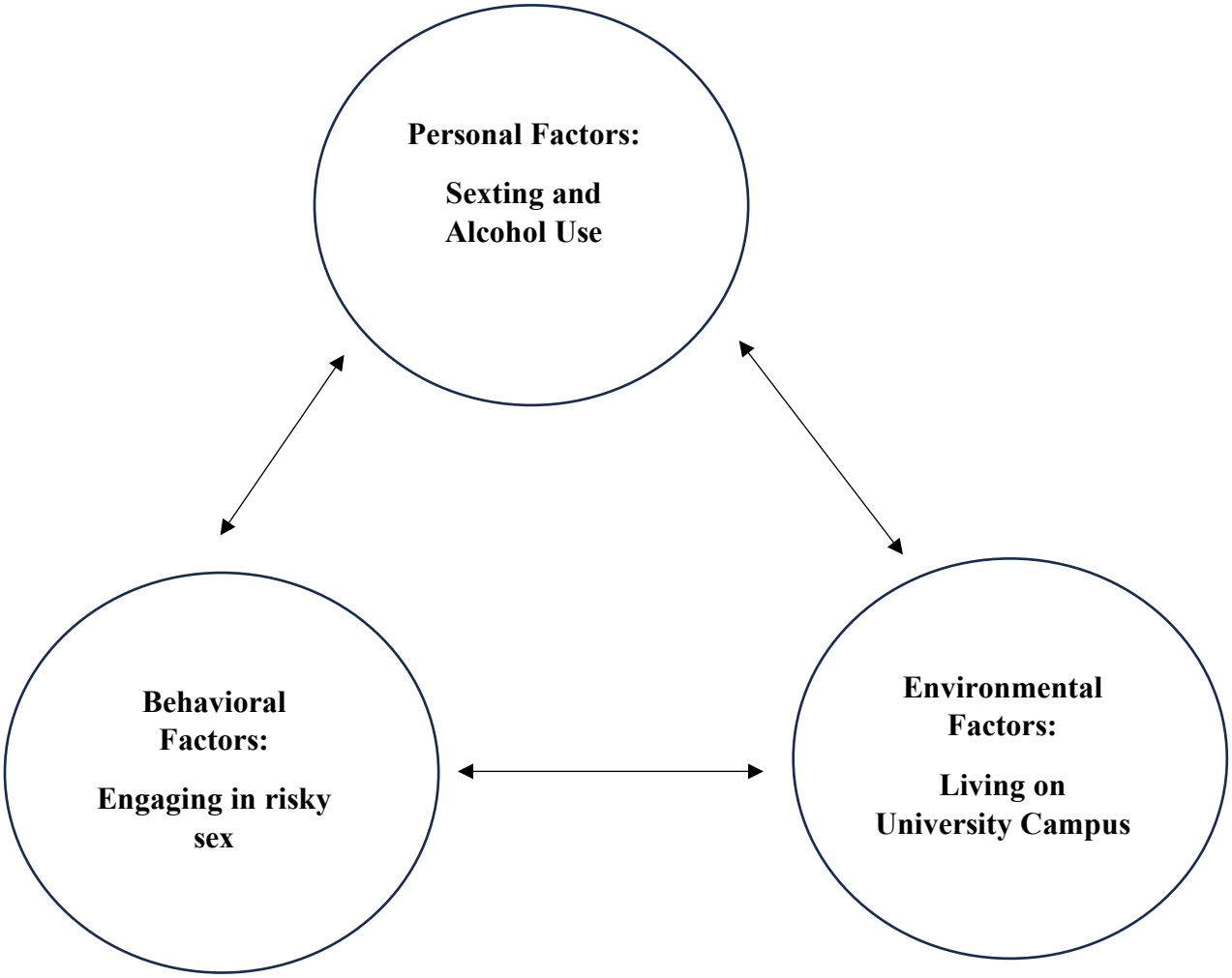
Those who engage in sexting behaviors are also more likely to agree that risky sex behaviors such as condomless sex and multiple partners are not as detrimental as those who do

not sext (Brodie et al., 2019). In a longitudinal study looking at sexting behaviors and sexual violence, the sexting frequency was the meditator for alcohol use and sexual violence, and the direct pathway was that alcohol use led to increased sexting, which led to sexual violence (Dir et al., 2018).

Person

Studies have suggested that people enjoy sexting (Ayinmoro et al., 2020; Hudson et al., 2014). Additionally, sexting has been correlated with increased sexual satisfaction (Brodie et al., 2019). However, because sexting and alcohol use have been closely linked and alcohol use decreases self-efficacy, the adverse outcomes of sexting could interfere with the positive outcomes of sexting (Hudson et al., 2014; Makgale & Plattner, 2017).

Figure 2: Reciprocal triadic causation model



CHAPTER 2

LITERATURE REVIEW

"Rachel Njeri, a student of Makerere University in Uganda, wept bitterly when recounting a sexual assault that took place in April 2018. "I tried to resist his actions but he was stronger than me. He grabbed me and threw me on the cabinet files at the corner"(Rao, 2018).

The World Health Organization (WHO) defines sexual violence as "any sexual act, attempt to obtain a sexual act, or other act directed against a person's sexuality using coercion, by any person regardless of their relationship to the victim, in any setting. It includes rape, defined as the physically forced or otherwise coerced penetration of the vulva or anus with a penis, other body part or object, attempted rape, unwanted sexual touching, and other non-contact forms" (World Health Organization, 9 March 2021). The definition of sexual violence is the most comprehensive for all types of sexual violence because it includes both actual and attempted unwanted sexual contact and includes the definitions for both intimate partner violence and sexual assault. For this dissertation, sexual violence will describe both sexual assault, intimate partner violence, and sexual violence. A form of sexual violence that is emerging is technology-facilitated sexual violence.

Technology-facilitated sexual violence (TFSV) is another form of sexual violence and is defined as "any sexual violence occurring through the use of technology" (Powell, 2020). The

behavior of sexting has been associated with TFSV (Patel & Roesch, 2020). Sexting is defined as "the sending of sexually explicit messages or images by cellphone" (Brown, 2020). The prevalence of TFSV was assessed in a global meta-analysis using 25 articles, and it found that between seven and 17% of participants have been victimized by sexting behaviors (Patel & Roesch, 2020). A meta-analysis by Mori et al. found that gender differences exist between men and women when it comes to sexting. Women are more likely to report having their sexts forwarded without their consent and are more likely to report harassment (Mori et al., 2020). The consequences of TFSV are the same as those who have experienced physical sexual assault, which include depression, anxiety, decreased self-esteem, and reports of PTSD (Patel & Roesch, 2020; Powell, 2020).

Definitions of Sexual Violence and Assault

Sexual violence is the umbrella term under which sexual assault falls. The World Health Organization defines sexual violence as "any sexual act, attempt to obtain a sexual act, or other act directed against a person's sexuality using coercion, by any person regardless of their relationship to the victim, in any setting. It includes rape, defined as the physically forced or otherwise coerced penetration of the vulva or anus with a penis, other body part or object, attempted rape, unwanted sexual touching, and other non-contact forms" (World Health Organization, 9 March 2021). Sexual Assault is defined as

> "sexual contact or behavior that occurs without explicit consent of the victim. Some forms of sexual assault include attempted rape, fondling or unwanted sexual touching, forcing a victim to perform sexual acts, such as oral sex or penetrating the perpetrator's body, or penetration of the victim's body, also known as rape." (Basile KC, 2014; Rainn (Rape, 2023).

The Global Context: Prevalence of Sexual Violence Among University Students

Sexual violence on university campuses is a global public health issue. In Turkey, it was reported that across four universities, sexual aggression victimization was 77.6% for women and 65.5% for men (Schuster et al., 2016). Ten universities in Germany participated in a study assessing the perpetration of sexual victimization. They found that 13.2% of men and 7.6% of women were perpetrators, while 35.9% of women and 19.4% of men had been victimized (Krahé & Berger, 2013). In the Netherlands, 26.2% of students reported experiencing sexual violence, and 9.2% reported being raped (Wellum et al., 2023). A sample of students from five universities in Chile reported sexual victimization rates of 53.8% for women and 53.0% for men in their first year of university (Schuster & Krahé, 2019). In this same study, 32.5% of women and 38.3% of men reported victimization by the end of their second year at university. One form of sexual violence that affects students attending university is intimate partner violence, a type of sexual violence that occurs among current and former spouses and dating partners and is defined as "abuse or aggression that occurs in a romantic relationship" (Black, 2011). A meta-analysis of intimate partner violence among university students in 22 countries worldwide reports that prevalence was highest in Africa (16.3%), compared to South America (13.9%) and Asia (4.2%) (Pengpid & Peltzer, 2016). Women attending university in Ethiopia reported lifetime sexual violence prevalence to be 54.9% and during the academic year prevalence to be 35.3%, with unwanted touching and groping reported by 77.4% of the women in the sexual violence in the academic year group (Arnold et al., 2008). In Nigeria, 45.2% of students reported sexual violence victimization, and only 22.5% reported their experiences to their families (Iliyasu et al., 2011). This was further broken down, where 22.6% were able to get out of an attempted rape.

Unfortunately, 3.2% reported being raped. In a study looking at university students in Uganda, 31.1% reported sexual coercion in their lives (Agardh, Tumwine, et al., 2012).

Consequences of Sexual Violence

Globally, experiencing sexual violence has been shown to increase mental and neurological disorders by 2.2 times more than those who have not experienced sexual violence. Experiencing sexual violence while attending university in the United States has been linked to mental health symptoms such as post-traumatic stress disorder (PTSD), depression, and anxiety. Twenty-one percent of Nigerian students with no history of sexual assault reported depressive symptomology, whereas 31% of the students who had experienced sexual violence reported depression symptoms. The group difference was significant at 0.04 (Tadesse Tarik et al., 2023). Increased mental health disorders, risky sexual behaviors, and other consequences such as decreased interest in academic life were found among the populations of university students. Additionally, for those who have experienced sexual violence, behaviors such as unsafe sexual practices, including multiple sexual partners, increased alcohol use, and poor health-related quality of life, were increased by 1.5 times. The likelihood of reporting sexual and reproductive health problems, including transmission of HIV, increased by 1.2 times for those who experienced sexual violence (World Health Organization, 2022). University students who have experienced sexual violence also reported high disengagement with their academic life and low feelings of safety on campus (Dworkin, 2020; Kammer-Kerwick et al., 2021). Similar results were found among Canadian students who reported sexual violence victimization. Canadian women in this study who reported incidents of sexual violence were less likely to rate the school as important, had less academic and school support, and had a higher rating of school avoidance (Stermac et al., 2021). At a university in Cape Town, South Africa, students reported on the

consequences of sexual violence, which included no condom use during rape (27.3%), inability to take exams (46.8%), becoming pregnant and having an abortion (14.2%), and (79.2%) were worried about being raped when they walked alone at night (Mutinta, 2022).

Risk of Sexual Violence Victimization and Perpetration

Risk factors for sexual violence perpetration in the United States include identifying as a male, alcohol consumption, hostility towards women, prior delinquency, fraternity membership, history of sexual violence perpetration, rape myth acceptance, age at first sex, risky sexual behaviors (such as multiple sexual partners, impersonal sex, motivation for sex and sexual media consumption), and peer approval of sexual violence (Bonar et al., 2022; Steele et al., 2022). Risk of sexual violence victimization includes identifying as female, sexual/gender minority status, lower socioeconomic status, and alcohol consumption (Bonar et al., 2022).

Risk factors for experiencing sexual violence were identified using a meta-analysis of studies in over 20 sub-Saharan African countries. Study participants were predominately women aged 15-24. Other factors included were education status, specifically lower education levels, substance use, age, history of child abuse and parental abuse, engaging in risky sex (multiple partners, condom-less sex, HIV status, STI status, and age of sexual debut), prior sexual violence victimization, living arrangements in early marriage, age of marriage, socio-economic status (SES), being employed, food insecurity, and partners education status (Black, 2011; Blanco et al., 2022; Muluneh et al., 2021).

Interventions for Sexual Violence on University Campuses

Preventing sexual violence, or primary prevention, is a significant public health strategy (Basile, 2016). Because of the high prevalence of sexual violence on university campuses, many

interventions are delivered in this setting. One of the most effective and widespread interventions on university campuses is the bystander intervention. The bystander intervention, developed by Victoria Banyard, is one of the most effective programs delivered at university campuses to date and is adaptable for a variety of types of campuses (Banyard, 2008b; Banyard et al., 2007; Bouchard et al., 2022; Cares et al., 2015). Bystander interventions address the prevention of sexual violence at the primary, secondary, and tertiary levels. The intervention teaches participants how to intervene at the primary level by teaching them how to recognize the signs that a sexual assault may be likely to occur. An example could be acknowledging that a friend who is intoxicated is talking to someone, trying to get them to leave a party with them, so they know to go over to their friend and get them out of the situation. At the secondary level, during an assault or elevated risk situation, you see a person put something in a friend's drink and tell your friend. At the tertiary level, after the assault, you support the survivor by listening to the next steps the survivor is comfortable taking (Mainwaring et al., 2023).

In addition to the bystander intervention, Dr. Banyard developed a measure to assess a person's intention to intervene in the event of sexual violence (Banyard et al., 2014). This measure consists of 10 questions that use a Likert scale to assess the likelihood of engaging in behaviors. Examples of questions include "approaching someone if I knew they were in an abusive relationship," "offering support if someone I know has been sexually assaulted," "checking on someone who looks intoxicated," or "telling a friend their drink was spiked" (Banyard et al., 2014). A global meta-analysis assessing the effect size of 33 bystander interventions, 25 were delivered to university students from 2007 to 2021, reported a small to medium effect size for the intervention (g=0.43) (Park & Kim, 2023). This study examined eight areas of the bystander interventions: Definition (*An ability to identify risk and determine whether*

the intervention to the situation is appropriate) had the largest effect size at 0.62. Other areas of significance included bystander efficacy (*Positive attitudes, confidence, and skills to intervene in the situation*) (g=.43). Responsibility (*An ability to take responsibility to intervene in the situation*) (g = .31), action to intervene (*Actual helping or intervening behaviors*) (g = .30), awareness (*An ability to notice the IPV or sexual assault situation*) (g = .29), and gender norms/attitudes (*Norms, beliefs, and attitudes related to gender or gender-based violence*) (g = .26). The empathy for victims *(Empathy toward IPV victims)* was not significant. A person's intention to intervene (*Likelihood of intervening in the situation*) had the second highest effect score (g=0.45). The literature suggests that one of the most salient predictors of a person's intention to intervene is their acceptance of rape myths (Jozkowski et al., 2021; Leone et al., 2021). Rape myths were defined by Martha Burt in 1980 as "prejudicial, stereotyped, or false beliefs about rape, rape victims, and rapists." Burt goes on to explain that rape myths are "attitudes & beliefs that are generally false but are widely and persistently held, and that serve to deny and justify male sexual aggression against women." The scale was updated in 1994 by Lonsway and Fitzgerald to focus on common rape myths and decrease the length of the scale. (Burt, 1980; Lonsway & Fitzgerald, 1994). For example, accepting judgmental and stereotyped beliefs about women is accepting rape myths. The assessment and dispelling of rape myths are important considerations in the development and evaluation of sexual assault interventions (Leone et al., 2021).

Mental Health

Experiencing sexual violence is a risk factor for higher rates of depressive symptomology (Jina & Thomas, 2013; Kalomo et al., 2020; Muluneh et al., 2021; Muluneh et al., 2020). Students who experienced sexual violence during their time at university in the United States

reported mental health symptoms such as post-traumatic stress disorder (PTSD), depression, and anxiety. Also, students report high disengagement with their academic life and low feelings of safety on campus (Dworkin, 2020; Kammer-Kerwick et al., 2021). Depressive symptomology is reported more frequently for women who experience gender-based sexual violence in sub-Saharan Africa than those who have not experienced this type of violence (Muluneh et al., 2020). Other disorders, such as post-traumatic stress disorder and anxiety, were also prevalent among sexual violence survivors. (Jina & Thomas, 2013). Similar results were found in a study looking at Canadian students who reported sexual violence victimization. In this study, women who reported incidents of sexual violence had lower scores on the importance of school, had lower scores on academic and school support, and had higher rates of school avoidance (Stermac et al., 2021). Nigerian university students who reported sexual violence victimization reported depressive symptomology (Tadesse Tarik et al., 2023).

Mental health infrastructure at Makerere University has been established. According to their website, the infrastructure includes counseling staff for their students, individual counseling academic support, and workshops for staff and students (University, 2024). Therefore, mental health challenges may be the most modifiable target in our population. The mental health of students at Makerere has been researched for many years. The first article on students' mental health at Makerere University was in 1967. Bennett reported on first-year university students' challenges, including family stress, academic achievement, and other issues that were not clarified. Bennett concluded that the prevalence of psychiatric illness among students is between nine and 10 percent (German & Arya, 1968). However, when German and Arya published their prevalence data in 1968, the rate had risen to 10.8%. According to the WHO, globally, 13.4% of first-year college students have a major depressive disorder (Karyotaki et al., 2020). These

numbers are similar to the 1968 findings of German and Arya; however, there is more current data to understand better the current prevalence of depression among students at Makerere. In 2006, the prevalence of depression was assessed for first-year undergraduates and first-year medical students. Ovuga et al. found that undergraduates were more depressed (16.2%) than first-year medical students (4.0%) (Ovuga et al., 2006). As of 2021, the prevalence of depression among medical students at Makerere has risen to 21.5% (Olum et al., 2020a). Olum et al. did report that while academic achievement is still a stressor for students, financial problems and lack of free time are now more predominant factors for depression.

To date, there are no studies that look at sexual violence as a risk factor for depression among students at Makerere; however, a study conducted at Mbarara University of Science and Technology in Uganda did assess this issue. In this study, 31.1% of the students had experienced sexual coercion, and rates were similar for males (29.9%) and females (331.%) (Agardh et al., 2011). They also found that women who had experienced sexual coercion or perceived threats of violence were significantly more likely to have high depression scores.

Alcohol Use

Drinking alcohol is a risk factor for increased likelihood of sexual violence victimization and plays a significant role in sexual violence (Sontate et al., 2021). Alcohol is not just a risk factor for perpetration; it is also a significant risk factor for the person who has experienced sexual violence (Schuster et al., 2016). One study found that alcohol was used by either the perpetrator or person who experienced sexual violence nearly 75% of the time (Krahé & Berger, 2013). Women in a qualitative analysis of drinking and sexual violence reported feeling embarrassed and at fault for contributing to sexual violence (Jill et al., 2017). According to a

meta-analysis of alcohol interventions in sub-Saharan Africa, students were identified as a group at high risk for alcohol use (Francis et al., 2020). Alcohol use is a risk factor for engagement in risky sex. Alcohol use was reported among South African students; 38% reported alcohol dependence (Heeren et al., 2013). At a university in South Africa, alcohol use before sex was reported by 14% of the students (Heeren et al., 2013). Thirty-three percent of students in a South African study reported drinking before having sex, and being drunk while having sex was found in 38.2% of participants (Hoffman et al., 2017). Additionally, in a qualitative study of adolescents in Tanzania, participants were quoted on perceptions of women who drink and their psychological state when drinking (Sommer et al., 2021). The following remarks were made:

"After drinking, [girls] end up removing their clothes; they are psychologically distorted after drinking alcohol. [in-school boys, Bunju]".

"Once a girl drinks, her mind melts away, unlike men. [in-depth interview, in-school boy, Bunju]."

Similar findings to students in South Africa and Tanzania were found in Uganda. A structural equation model was developed, and alcohol use disorder was significantly associated with depression, anxiety, and risky sexual behavior among students at a university in Uganda (Kintu et al., 2023). These findings were aligned with a study from 2012 where students from Makerere University who were in the heavy episodic drinking category and alcohol use categories were more likely to be male and have depressive symptoms (Louis Henry et al., 2020).In Ethiopia, researchers reported that 38% of the participants drank alcohol, but there was no information about drinking before sex (Teferra et al., 2015).

Rape Myth Acceptance

The acceptance of rape myths is a risk factor for increased risk of sexual violence. It will be used as a risk factor for determining the likelihood of intervening in the event of sexual violence. Rape myth acceptance is correlated with sexual violence (Bohner et al., 2010; Frazier & Gonzales, 2022; Rinehart et al., 2023). Rape myth acceptance among university students does vary from the US to Africa. Students in the US are less likely to endorse rape myths than students in South Africa, Ghana, and Nigeria, and Nigerian students have higher rates of rape myth acceptance (Fakunmoju et al., 2021b). Female students in the U.S. who have experienced sexual violence endorse rape myths less than women with no history of sexual violence (Lathan et al., 2023). This finding was also found among female students in South Africa who had experienced gender-based sexual violence (Finchilescu & Dugard, 2021). Women attending university in Nigeria reported on their knowledge of social beliefs on sex and rape and rape myth acceptance. Results included that societal perceptions of rape were salient and that women did report acceptance of rape myths (Aborisade, 2016).

A study assessing experiencing gender-based violence (GBV) at a South African university found that white male students who had experienced GBV were significantly more likely to accept rape myths (M = 2.15) than those who had not (M=1.86). This finding was inverse to the African men who were less likely to subscribe to rape myths (M=1.97) if they had experienced GBV than those who had not experienced this violence (M=2.33). This study also found that women who had experienced gender-based violence were less likely to accept rape myths (Finchilescu & Dugard, 2021). Among university students in Namibia, rape myths about men's sexual frustration and their inability to stop when aroused were accepted by both men and

women. Also, blaming women for being raped while drunk or going further than a kiss was an accepted myth (Nafuka & Shino, 2014). While some of the items on the rape myth acceptance scale did have higher scores, the students did not report strongly endorsing rape myths. A study conducted among South African social work students assessed rape myth acceptance and found low rape myth acceptance. Those further along in the program reported the lowest acceptance (John et al., 2018). Studies have shown that the influence of masculine gender norms influences rape myth acceptance and aids the perpetuation of blaming women in the event of sexual violence (Fakunmoju et al., 2021a; John et al., 2018; Nafuka & Shino, 2014). Gender differences in rape myth acceptance were found among adults living in Nigeria. Women rejected the idea that other women would lie about being raped, but there were no gender differences found when asked if "he didn't mean to," "it wasn't really rape," and "she asked for it." (Fakunmoju et al., 2019). Women in rural Kenya also reported accepting rape myths (Tavrow et al., 2013). There are mixed findings on rape myths among sub-Saharan African university students. Women attending university in Nigeria reported their knowledge of social beliefs about sex, rape, and rape myth acceptance. Findings included that societal perceptions of rape were salient and that women did report acceptance of rape myths (Aborisade, 2016).

Attitudes Towards Intention to Intervene (The Bystander Effect)

Since the tragic death of Catherine (Kitty) Genovese, a 28-year-old woman who was murdered in the early morning hours of March 13, 1964, and the subsequent article published in the New York Times, *Who Saw Murder Didn't Call the Police: Apathy at Stabbing of Queens Woman Shocks Inspector,* the bystander effect has captivated social scientists (Gallo, 2014; "Who saw murder didn't call the police: Apathy at stabbing of queens woman shocks inspector," 1964). Kitty Genovese's murder was reportedly witnessed by 38 people, yet none of them called

the police or intervened on her behalf (Agazue, 2021). This incident led to the development of a social psychological theory called the Bystander Effect. In 1968, researchers Darley and Latane experimented to understand how a person would react to a medical situation depending on how many people were present. They found that when a person thought they were the only one present during a medical event, 85% reported the event, but when a person thought four or more people were present, only 31% reported the event (Darley & Latané, 1968). The bystander effect is now defined as "…the tendency of people to resist helping someone in an emergency when others are present" (Chernyak-Hai, 2023). Since the incident, researchers have applied the bystander effect to several different emergencies or violent acts toward women.

Another scholar, Dr. Banyard, has used the bystander effect in her work, focusing specifically on individuals' intention to intervene as it relates to sexual violence (Banyard et al., 2007). Banyard also developed one of the most widely used bystander interventions for college students: Bringing in the Bystander (Banyard et al., 2007). Bringing in the Bystander intervention was developed using the framework of Banyard's bystander theory. The intervention aims to change behaviors toward sexual violence by addressing the knowledge, attitudes, and behaviors of the participants. According to Bouchard et al., 2022, there are three prongs of the intervention, "(1) engaging the campus community as prosocial bystanders and fostering a sense of community responsibility to act as a bystander,(2) developing empathy for victims of sexual violence, and (3) equipping students with skills to intervene safely and effectively before, during, and after an incident of sexual violence occurs" (Bouchard et al., 2022). The intervention uses techniques such as role play and interactive learning exercises to influence changes in attitudes, knowledge, and behavior of sexual violence (Banyard, 2005; Bouchard et al., 2022).

More recently, research has highlighted the link between the Bystander Effect and rape myth acceptance. Findings on the acceptance of rape myths and a person's intention to intervene have been explored extensively in the literature, and it found that a person who endorses rape myths may not associate aggressive sexual behaviors as inappropriate (Leone et al., 2021). Significant results have included students decreasing their acceptance of rape myths and the culture of rape within the university (Cadaret et al., 2021). This same study found that one-month post-bystander intervention, students endorsing rape myths significantly decreased, $F(1) = 12.87$, $p = 0.001$, as did perceived rape myth endorsement of college peers, $F(1) = 5.34$, $p = 0.024$. The intervention group also indicated that their personal and perceived beliefs were significantly less endorsed than the control group. A study assessing the relationship between rape myth acceptance, alcohol use, and intention to intervene found that when people reported alcohol intoxication, they were more likely to victim blame if they had higher rape myth acceptance and were less likely to intervene (Jozkowski et al., 2021). A meta-analysis of 11 studies found that the bystander intervention was effective at decreasing rape myth acceptance and increasing levels of intention to intervene; however, there was no effect on behavior change (Bouchard et al., 2022). This finding is similar to other bystander interventions that can be assessed on university campuses. Extant research linking acceptance of rape myths and a person's intention to intervene has predominately focused on data from U.S.-based university campuses (Bonar et al., 2022; Bouchard et al., 2022; Leone et al., 2021; Orchowski et al., 2020). No published articles were found in this review of research examining the relationship between acceptance of rape myths and a person's intention to intervene specifically related to sexual violence in Sub-Saharan Africa; however, risk factors associated with sexual violence in this context are plentiful.

Global Sexting Prevalence

Sexting is defined as the sending of sexually explicit messages or images by cellphone (Brown, 2020). A meta-analysis of 50 global studies looking at sexting behaviors of people aged 18-29 with a mean age of 20.3 years reported that 38.3% of pooled participants had sent a sext, 41.5% had received a sext, 47.7% had engaged in reciprocal sexting, 15.0% had forwarded sexts they received without the sender's consent, and 7.6% reported knowing that their sext had been forwarded without their consent (Mori et al., 2020). The prevalence of sexting varies widely globally. In a study of students in the southern United States, 70% reported sexting, 74% had sent, and 84% had received a photo or video (Ingram et al., 2019). A study from the midwestern United States had higher prevalence rates, with 80.9% reporting engaging in sexting behaviors and 76.8% reporting that they had sent a sext or photo (Hudson et al., 2014). When looking at students in Europe, a study with Spanish student participants found sexting prevalence rates to be 37.1% (Gassó et al., 2021). A survey of university students in Bosnia had prevalence rates of 23.64% (Sesar et al., 2019). When looking at African university students, students in Botswana reported receiving a sext at least once (30.1%), occasionally (32.0%), and frequently (19.7%) (Makgale & Plattner, 2017). Students in Kenya reported a sexting rate of 57% (Mukonyo, 2020). Among women university students in Nigeria, 47% received a sext, and 44.5% enjoy sexting (Ayinmoro et al., 2020).

Risky Sexual Behaviors

Risky sex behaviors include engaging in sex with multiple partners, engaging in risky sexual activities, including inconsistent condom-less sex, and being diagnosed with a sexually transmitted infection (Goodman et al., 2016). Engaging in risky sex behaviors is linked to an increased risk of HIV and STI infections (Prevention, 2024). In Africa, rates of HIV and STIs are

higher than anywhere else in the world. According to the World Health Organization (WHO), as of 2018, 26 million Africans live with HIV, and over one million new infections were reported (Organization, 2020). According to the 2016 Uganda-based HIV impact assessment, overall HIV prevalence is 6.2%, with 7.6% prevalence among women and 4.7% among men. HIV prevalence among people aged 15-24 was 2.1%; however, it should be noted that among women in this age group, the prevalence is four times higher (3.3%) than men of the same age (0.8%) (Ministry of Health, 209). New cases of sexually transmitted infections (STI) in Africa as of 2012 were 63 million per year and represented 18% of the global incidence (World Health Organization, 2020). The prevalence of STIs has been increasing in Uganda; in 2006, the rate was 22%, and the most recent report indicates that it is 27% (Masanja et al., 2021; Nankinga et al., 2016). Nakinga et al. reported that 28% of women in the study had an STI in the last 12 months. According to Masanja et al., no nationally representative studies have assessed the overall STI burden among young people aged 15-24 (Masanja et al., 2021). While understanding the prevalence rates of HIV and STIs on a population level is important, for this study, we will need to understand HIV and STI prevalence among university students in Africa and, more specifically, Uganda.

Students attending universities in Sub-Saharan Africa report high rates of engagement in sexual activity. In South Africa, rates varied from 79.2% to 37% (Abels; Born et al., 2015; Fennie & Laas, 2014; Heeren et al., 2013; Zhang et al., 2017) There is less variability in Ethiopia, with rates from 42.7% to 28% (Dingeta et al., 2012; Teferra et al., 2015). In Mozambique, 85.8% of students were sexually active. The prevalence of ever having sex among students at Mbarara University in Uganda was 59%, with more men (62.9%) engaging in sex than women (51.3%) (Agardh, Cantor-Graae, & Östergren, 2012). Engagement in risky sex among university students in Sub-Saharan African countries ranges from 26% in Uganda to

nearly 64% in Botswana (Amare et al., 2019). The consequences of risky sex can have detrimental impacts on a student's success at the university level for women. These include unplanned pregnancy, depression, abortion, higher sexually transmitted infections, and academic withdrawal (Kalichman et al., 2005b).

Condom use is a paramount sexual health outcome. This behavior takes several steps to achieve the behavior, including finding a condom, using it correctly, and negotiating its use with a partner. Condom use rates among African university students vary widely. Among South African Students, rates range from 89.9% to 28% (Born et al., 2015; Heeren et al., 2013). However, in Ethiopia, condom use rates are low and range from 31% to 35% (Fennie & Laas, 2014; Teferra et al., 2015). This is similar to what was reported in Uganda, where rates were 37.4% for men and 49.2% for women, and 42.4% reported no intention to use a condom (Mehra et al., 2014).

The number of sexual partners is another important sexual health outcome, especially for university students. The percentage of university students in South Africa who reported engaging in sex with more than two partners in the last 12 months was between 16.7% and 37.2% (Born et al., 2015; Zhang et al., 2017). Among Ethiopian students, 33% had engaged in this behavior (Dingeta et al., 2012). Uganda students have the highest percentage at 42.5% (Mehra et al., 2014).

Sexting and Engaging in Risky Sexual Behavior

The link between sexual violence and sexting behaviors, especially for women, has been an area that is currently growing among researchers (Dir et al., 2018; Krieger, 2017; Salerno-Ferraro et al., 2022). Those who engage in sexting behaviors are more likely to report risky sex

behaviors, including being sexually active, having higher rates of STI testing, and having a higher number of sexual partners (Gordon-Messer et al., 2013; Ingram et al., 2019; Makgale & Plattner, 2017). Among women attending university in Nigeria, those who sent nude photos were 2.5 times more likely to engage in behaviors associated with risky sex (Ayinmoro et al., 2020). Students who reported sexting were eight times more likely to engage in sexual intercourse, but when asked about using condoms, there was no relationship (Mukonyo, 2020).

Sexting and Alcohol Use

Sexting is a mediator in the relationship between alcohol use and sexual violence (Dir et al., 2018). Those who drink alcohol are more likely to send and receive sexts than those who do not drink (Benotsch et al., 2013; Hudson et al., 2014; Makgale & Plattner, 2017). Alcohol use and sexting among university students in the United States ranged from 58.1% (Hudson et al., 2014). Correlations were found among university students in Botswana who reported sexting and having sex under the influence of alcohol. (Makgale & Plattner, 2017).

Sexual Violence and Sexting Behaviors

Studies have assessed the association between engaging in sexting and risky sexual behaviors (Brodie et al., 2019; Gordon-Messer et al., 2013; Ingram et al., 2019; Makgale & Plattner, 2017). The link between sexual violence and sexting behaviors, especially for women, has recently received more attention in the literature. (Dir et al., 2018; Krieger, 2017; Salerno-Ferraro et al., 2022). Among women attending university in Nigeria, those who sent nude photos were 2.5 times more likely to engage in behaviors associated with risky sex (Ayinmoro et al., 2020). Sexting is a mediator in the relationship between alcohol use and sexual violence (Dir et

al., 2018). Correlations, though weak, were found among sexting and a higher number of sexual partners among African university students (Makgale & Plattner, 2017).

Sexting Behaviors and the Effects on Sexual Health Outcomes

Sexting prevalence varies widely among people aged 18-24 in the United States. Those attending university report higher sexting rates compared to their same-age counterparts who are not attending university. A study in 2013 of all U.S. residents aged 18-24 found that 57% of the participants did not sext (Gordon-Messer et al., 2013). Sexting behaviors are common among university students but vary widely globally. A meta-analysis of 50 studies with participants aged 18-29 who did not have to be university students found prevalence rates to be 38.3% (Mori et al., 2020). University students in the United States had the most considerable prevalence rates, with 100% to 70% of participants sending a sext and 94% to 74% receiving or sending a sexually suggestive text or photo (Cornelius et al., 2020; Hudson et al., 2014; Ingram et al., 2019). These rates are very different for students in Africa. While research is still in its infancy on this topic, a few studies are looking at sexting behaviors among African university students. Students in Botswana reported sexting at least once (30.1%) (Makgale & Plattner, 2017). Women attending university in Nigeria reported sexting rates at 47% (Ayinmoro et al., 2020).

CHAPTER 3

USING INTERVENTION CONSTRUCTS TO PREDICT A PERSON'S ATTITUDES TOWARDS SEXUAL VIOLENCE INTERRUPTION: ASSESSING THE BYSTANDER INTERVENTION SCALE

May, A.C., Callands, T.A., Hansen, N., Sekandi, J., Swahn, M. H. to be submitted to *African Journal of Health Sciences.*

Abstract

IMPORTANCE: The predictors of student's attitudes towards intervening in the event of a potential sexual assault have not been assessed at universities in sub-Saharan Africa. Additionally, the literature on the behaviors and attitudes that can predict intention to intervene, including symptoms of depression, rape myth acceptance, and alcohol use, are lacking in this population.

OBJECTIVE: Understanding how students' behaviors and attitudes toward risk factors of mental health, alcohol use, and rape myth acceptance when discussing interventions, and specifically the bystander intervention for sexual violence prevention, will be examined to identify the areas that would be most impactful for intervention development.

DESIGN, SETTING, AND PARTICIPANTS: A survey of 400 students, 200 men, and 200 women, was conducted in 2019 at Makerere University. The purpose of this study was to understand the attitudes and behaviors of students on topics such as drinking, intention to help, rape myth acceptance, and mental health outcomes.

MEASURES: Alcohol use was assessed using the AUDIT-10, Rape myth acceptance was using the Illinois rape myth acceptance scale. The CES-D-20 was used to assess depression symptomatology, and attitudes towards intention to intervene were evaluated using the Bystander Efficacy Scale.

Results: The mean age of the students was 20 years old. Most of the students met the criteria for major depression. Eighty-four and a half percent of the students reported no risk of alcohol use.

Students did report adherence to rape myths and had favorable attitudes towards the intention to intervene if they saw another person at risk of sexual violence. A multivariate logistic regression was performed to understand which variables predicted a higher intention to intervene. The final model was significant, $F(2,397) = 13.97$, $p < 0.001$, $R = 0.26$, adj. $R^2 = 0.066$. Depression symptomology was the largest predictor in the model ($\beta = -0.190$, $p < 0.001$), and rape myth acceptance was less strong but still significant ($\beta = -0.143$, $p = 0.004$). Gender differences included higher depression scores for men (Men: $M = 19.88$, $SD = 7.85$; Women: $M = 18.01$, $SD = 10.73$; $t\ (398) = -1.99$, $p = 0.47$ two-tailed). More acceptance of rape myths by men (Men: $M = 36.01$, $SD = 6.42$; Women: $M = 32.66$, $SD = 1.87$; $t\ (398) = -4.97$, $p < 0.001$). Men also reported more alcohol use (Men: $M = 12.81$, $SD = 5.85$, Women: $M = 10.88$, $SD = 3.35$; $t = -4.04$, $p = <0.001$). Gender was a significant moderator for rape myth acceptance rape myth acceptance ($B = -.047$, $SE = .020$, $\beta = -.168$, $t = -2.37$, $p = .018$) and depression symptoms ($B = -.039$, $SE = .012$, $\beta = -.188$, $t = -3.18$, $p = .002$) in the model.

CONCLUSION: Students overall had favorable attitudes towards the intention to intervene in a potentially sexually violent act. There were two factors, higher depression symptomology, and acceptance of rape myths, that significantly predicted a person's intention to intervene in the event of a sexual assault.

Introduction

Sexual violence is a broad term that encompasses a variety of coercive behaviors directed against a person's sexuality. The World Health Organization (WHO) defines sexual violence as "any sexual act, attempt to obtain a sexual act, or other act directed against a person's sexuality using coercion, by any person regardless of their relationship to the victim, in any setting" (World Health Organization, 9 March 2021). This comprehensive definition includes both completed and attempted acts of sexual violence, such as rape, unwanted sexual touching, and non-contact forms of abuse. The WHO's inclusive approach ensures that both intimate partner violence and sexual assault are addressed, making this definition pivotal in understanding sexual violence across various contexts.

University students, especially in the United States, who have experienced sexual violence are at a significantly higher risk for mental health issues like post-traumatic stress disorder (PTSD), depression, and anxiety. Those who have experienced sexual violence also report a decrease in academic engagement and low perceptions of safety on campus (Dworkin, 2020; Kammer-Kerwick et al., 2021). Similarly, studies in Nigeria reveal that university students who have survived sexual violence are more likely to experience depressive symptoms compared to those without such experiences. Specifically, 30.7% of Nigerian students who had experienced sexual violence reported depression symptoms, compared to 21.3% of those without a history of assault (Tadesse Tarik et al., 2023). These findings align with a broader body of research that links sexual violence to depressive symptomatology across different populations (Jina & Thomas, 2013; Kalomo et al., 2020; Muluneh et al., 2021).

At Makerere University in Uganda, mental health challenges among students have been well-documented. Makerere provides counseling services, academic support, and workshops for students and staff (University, 2024). The prevalence of mental health issues has been of concern since the first study on student mental health at the university in 1967. Bennett's research indicated a psychiatric illness rate of 9-10% among students (German & Arya, 1968), which rose to 10.8% by 1968. More recent studies have shown an increasing prevalence of depression, particularly among medical students. A 2020 study by Olum et al. found that 21.5% of medical students at Makerere reported symptoms of depression. The study also noted that in addition to academic stress, financial issues and a lack of free time were significant contributors to depressive symptoms (Olum et al., 2020a). Although no studies have examined the specific impact of sexual violence on depression at Makerere, similar research at Mbarara University of Science and Technology found that students who had experienced sexual coercion were more likely to report high depression scores, particularly among women (Agardh et al., 2011).

Alcohol consumption is another significant risk factor for sexual violence victimization. It not only increases the likelihood of perpetrators engaging in violent behavior but also raises the risk of potential victimization (Sontate et al., 2021). A meta-analysis of alcohol interventions in sub-Saharan Africa identified university students as particularly vulnerable to alcohol use, suggesting that alcohol control measures could help mitigate the risk of sexual violence (Francis et al., 2020). Thus, addressing alcohol misuse is a critical component of any comprehensive sexual violence prevention program.

Rape myth acceptance, the belief in stereotypes or misconceptions about rape, such as victim-blaming or justifying the perpetrator's actions, also plays a key role in perpetuating sexual violence. Studies have shown that students in the United States are less likely to endorse rape

myths than students in South Africa, Ghana, and Nigeria, with Nigerian students showing the highest rates of rape myth acceptance (Fakunmoju et al., 2021a). Female students who have experienced sexual violence tend to endorse rape myths at lower rates than those who have not (Lathan et al., 2023; Finchilescu & Dugard, 2021). In Nigeria, societal beliefs surrounding sex and rape are deeply ingrained, with women reporting significant acceptance of rape myths (Aborisade, 2016). These findings underscore the importance of addressing cultural attitudes towards rape in preventing sexual violence.

To combat sexual violence, university campuses worldwide have adopted prevention programs. One of the most successful interventions is the Bystander Intervention Program, developed by Victoria Banyard. The bystander approach encourages individuals to take responsibility for preventing violence and is adaptable to various campus settings (Banyard, 2008a; Banyard et al., 2007; Bouchard et al., 2022). It operates at the primary, secondary, and tertiary levels, promoting proactive behaviors that prevent violence or intervene before it escalates. This approach has been shown to be effective in reducing incidents of sexual violence across university campuses.

The issue of sexual violence on university campuses, both in the United States and globally, highlights the need for comprehensive prevention and intervention strategies. The prevalence of sexual violence, its association with mental health problems such as depression, and the roles of alcohol use and rape myth acceptance are critical factors in shaping students' experiences. Addressing these factors is key to reducing sexual violence and fostering a safer, more supportive academic environment. This study seeks to explore how rape myth acceptance, depressive symptomology, and alcohol use influence students' willingness to intervene in sexual violence incidents in a Sub-Saharan context. Understanding these relationships can inform future

intervention strategies aimed at reducing sexual violence and improving mental health outcomes for university students.

Methods

Study Design and Eligibility

The current study utilizes cross-sectional survey data collected from students attending Makerere University, a large urban university in Kampala, Uganda, from February to November 2019. The purpose of this study was to understand the attitudes and behaviors of students on topics such as drinking, intention to help, rape myth acceptance, and mental health outcomes. Study participants were recruited using admission data from all students at Makerere University. Eligibility requirements included being 18 years or older and currently enrolled in years 2-5 of their undergraduate education. Exclusion criteria included students who did not attend Makerere's main campus, were not currently pursuing an undergraduate degree, or were enrolled in their first year at the university.

Ethical Considerations

Two IRBs approved this study, one from the University of Georgia, where the PI and Co-PI are faculty, and the other from Makerere University, where the PI holds a joint faculty position and the participants were recruited. Informed consent was administered and obtained via an online form. Participants were systematically sampled from an electronic database of students enrolled at Makerere University and invited to enroll voluntarily. Eligible participants were 18 or older and registered in years 2, 3, 4, or 5 of their undergraduate studies. Year 1 students were excluded from the study because they had only been enrolled in the university for a few months, and the questions were intended to capture lived experiences during college. Once a participant

was confirmed eligible for the study, they were required to read the first page of the questionnaire, which contained a brief description of the research, risks and benefits of participating, and research goals. After reviewing the research description, participants consented to participate by choosing the response “ok” at the end of the page, indicating that participants had reviewed the information and were interested in participating in the survey. This step was required before proceeding with the survey.

Participant Recruitment

An electronic database containing records of approximately 35,000 undergraduate students facilitated recruitment, which was accessed and used with permission through the university's Counselling and Guidance Center. The database served as a sampling frame for systematic stratified random sampling to facilitate the inclusion of undergraduate students in 5 years of academic study and a balance in sex. We employed three specific recruitment strategies to invite students to participate in the survey. First, mass emails were sent to all students selected in the first round of sampling. Second, bulk text messages were sent to the phone numbers obtained from the official university electronic database. Finally, phone calls were made directly to all students selected from the database, inviting them to participate voluntarily in the study. This process was repeated until a sample size of 400 was obtained, 200 males and 200 females. A pragmatic approach to sampling was conducted based on the available resources and timeframe to complete the pilot study.

Data Collection Procedure

Eligible students who consented to participate in the online survey received a link via e-mail to access and complete the questionnaire. Students could take the survey on any device

(laptop, mobile phone, tablet). Questionnaires were self-administered in English and took about 30 minutes to complete. After completing the survey, participants were given unique codes to redeem reward coupons for free internet or airtime worth $2.00.

Survey

The survey instrument consisted of measures to assess bystander attitudes about the intention to help in the event of potential sexual violence, rape myth acceptance, alcohol use, mental health, sexting, sexual risk behaviors, and technology use. Demographics such as age, major field of study, and sociodemographic questions were answered by the participants. Questionnaires measuring key study constructs were identified from previously validated studies. They included Prosocial Bystander Behavior ((Banyard & Banyard, 2008), rape myth acceptance (Payne et al., 2014), Depression Score (Radloff & Radloff, 1977), and the AUDIT drinking questionnaire (Bush et al., 2018)).

Measures

To assess a person's intention to intervene in the event of a potential sexual assault, the following measures were used; the CES-D-20 assessed depressive symptomology, the AUDIT was used to assess alcohol use, the Illinois Rape Myth Acceptance Score was used to determine attitudes and subjective norms about rape myths, and the outcome variable is the Bystander Scale, which assesses a person's attitudes towards their intention to intervene if they saw someone who was at risk of being sexually violated. The AUDIT, Illinois Rape Myth Acceptance Scale, and the Bystander Scales were modified for cultural appropriateness. The AUDIT was reduced to the first six questions in the scale, the Illinois Rape Myth Acceptance

Scale was modified from 20 questions to 13, and the Bystander intervention scale was reduced from 51 questions to 11 questions.

Depression Score

Depression symptoms were assessed using the 20-item Center for Epidemiologic Studies Depression Scale (CES-D) scale developed by Radloff (1977). The scale assessed the frequency of depressive symptoms participants felt or exhibited over the past week. Example questions include "I was bothered by things that usually don't bother me" and "I felt that I could not shake off the sadness even with help from my family or friends." The response set for these questions ranged from 0- 4, 0= "rarely or none of the time (less than one day)," 1= "some or a little of the time (1-2 days)," 2 = "Occasionally or a moderate amount of the time (3-4 days)," and "Most or all of the time (5-7 days)." The higher the score, the more depression symptomology a person reports. The cutoff score for depressive symptomology is 16.

Alcohol Use

Alcohol use was measured by using the first nine questions of the AUDIT scale. While the AUDIT is typically a 10-item scale, one question was removed for cultural appropriateness. To correctly identify alcohol use, participants were asked to indicate how often they drank alcohol and if drinking alcohol was interrupting their daily lives using a scale of 1=" Never" to 5= "Daily or Almost Daily." A person with higher scores would be considered a problem drinker for this study. The lowest score is a nine because zero was not an option for this study. The categories for low risk were modified to 9-16, 17-24 for hazardous or harmful alcohol consumption, and 25-32 for likelihood of alcohol dependence.

Rape Myth Acceptance

Rape myth acceptance was assessed using a modified version of the Illinois Rape Myth Acceptance Scale (Payne et al., 1999). The responses were recorded using a 4-point Likert scale with 1= "Strongly Disagree" and 4= "Strongly Agree." Questions included "If a girl acts like a slut, eventually she is going to get into trouble" and "If a guy is drunk, he might rape someone unintentionally." Higher scores indicate that the participant is more accepting of rape myths.

Intention to Intervene in the Event of Potential Sexual Violence (Bystander Efficacy Scale)

A modified Bystander Efficacy Scale assessed attitudes toward intention to intervene (Banyard et al., 2014). This scale was modified from the original 51 potential bystander assisting behaviors to eleven questions. Participants were asked to assess their attitudes towards their willingness to perform behaviors such as "I would tell a friend if I am convinced their drink may have been spiked with a drug" and "I would stop and check in with a friend who looked very drunk when they were being taken at a party o home with someone they just met." The responses were "yes" and "no." The questions are scored 0 (no) or 1 (yes), with the highest score being 11. Higher scores indicate that a person has more favorable attitudes towards the intention to intervene.

Data Analysis Plan

Research question 1: Does alcohol use, rape myth acceptance, and depression symptomology predict a person's intention to intervene in the event of a sexual assault?

Hypothesis: Those who report more depression symptoms, who are more accepting of rape myths, and who report more alcohol use will be less likely to intervene in an attempted sexual

assault compared to those who report fewer symptoms of depression, who are less accepting of rape myths, and who report less alcohol use.

Research question 1a: Do gender differences exist between women and men when looking at the intention to intervene, rape myth acceptance, alcohol use, and depression symptomology?

Hypothesis: Women will be more likely to intervene in the event of a potentially violent act, will reject rape myths, will be fewer problem drinkers, will report fewer symptoms of depression, and be less depressed than the men in this study. Additionally, we will assess if gender is acting as a moderator for the predictor measures.

The data was cleaned, and the reversed variables on the depression symptomology scale were re-coded. The Cronbach's alpha coefficients were assessed for their reliability, and all measures had statistically high reliability. The alphas were: alcohol use was .88, intention to intervene scale was .76, depression was .83, and rape myth acceptance was .82.

To understand the relationships between intention to intervene and gender, depression symptomology, rape myth acceptance, and alcohol use, bivariate tests were conducted. The regression model will include each significant relationship at the $p < .05$ level. Multiple regression was performed using the significant predictor variables to predict students' intent to intervene (measured by the Bystander Scale) in the event of a sexual assault among students at Makerere University.

To answer research question one of this study, a multiple regression was performed to answer the following hypothesis: Will those who report more depression symptoms, who are more accepting of rape myths, and who report more alcohol use will be less likely to intervene in

an attempted sexual assault compared to those who report fewer symptoms of depression, who are less accepting of rape myths, and who report less alcohol use.

To answer the second research question of this study, if gender differences exist between women and men when looking at the intention to intervene, rape myth acceptance, and depression symptomology, an independent samples t-test will be conducted to answer the hypothesis that women will be more likely to intervene in the event of a potentially violent act, will reject rape myths, will be fewer problem drinkers, and will report fewer symptoms of depression symptomology than the men in this study. Additionally, we will assess if gender is acting as a moderator for the predictor measures.

Results

Descriptive Statistics and Correlations

There were 400 students included in the analysis, 200 men and 200 women. The mean age was 23 (*SD* = 2.20), ranging from 19-29. Depression rates were high among the students: 70.2% of students scored greater than 16, and 29.8% scored 15 and under. The mean score was 22.01 (Range = 0-56). See Table 3.12 for the descriptive items in the CES-D-20. Most students reported no risk for alcohol use (84.5%). Eleven percent were at moderate risk, and 4.5% reported alcohol use. See Table 3.13 for items on the AUDIT-10 scale. Most students accepted rape myths (66%) but also indicated favorable attitudes toward the intention to intervene if they saw another person at risk of sexual violence (87.6%). See Table 3.14 for the Illinois Rape Myth Acceptance Scale and Table 3.15 for the items on the Bystander Efficacy Scale. The descriptives on the measures are found in Table 3.1. A scatter plot was constructed to assess the assumptions of linearity between each variable by intention to intervene. For each measure, there appeared to

be a small but negative correlation, meaning that as intention to intervene increased, rape myth acceptance, alcohol use, and depression symptomology decreased.

Pearson Product Moment correlations were conducted for each measure to understand these relationships better. See Table 3.2 for the correlations. Significant negative correlations were observed between intention to intervene and rape myth acceptance, $r(398) = –.176$, $p < .001$, indicating that greater intentions to intervene were associated with less rape myth acceptance. The relationship between intention to intervene and alcohol use ($r = -.073$, $p = 0.15$) was not significant. Significant negative correlations were observed between intention to intervene and depressive symptoms, $r(398) = –.22$, $p < .001$, indicating that greater intentions to intervene were associated with less depressive symptoms. Significant positive correlations were observed between rape myth acceptance and alcohol use, $r(398) = –.10$, $p < .001$, indicating that greater rape myth acceptance was associated with more alcohol use. Significant positive correlations were observed between alcohol use and depressive symptoms, $r(398) = .23$, $p < .001$, indicating that alcohol use was associated with more depressive symptoms.

Table 3.1 Descriptive Statistics for Measures

	Total	**Women**	**Men**	**Range**
Variable	M (*SD*)	M (*SD*)	M (*SD*)	
Intention to Intervene	9.64 (1.95)	9.83 (1.87)	9.45 (2.00)	(0-11)
Rape Myth Acceptance	34.33 (6.94)	32.66 (7.06)	36.01 (6.41)	(13-52)
Alcohol Use	11.84 (4.85)	10.88 (3.35)	12.81 (5.85)	(9-32)
Depression Symptomology	22.01 (9.63)	18.01 (10.73)	19.88 (7.85)	(4-56)
Age	23.10 (2.20)	22.92 (2.31)	23.27 (2.07)	(19-29)

Note: N=400 (Women n=200, Men n=200)

Table 3.2 Correlations of Rape Myth Acceptance, Alcohol Use, and Depression Symptoms

Variable	**1**	**2**	**3**	**4**
1 Intention to Intervene	**-**			
2 Rape Myth Acceptance	**-.18****	-		
3 Alcohol Use	-.07	**0.10***	-	
4 Depression Symptomology	**-.22****	**0.22****	**0.23****	-

*** Indicates significance at the p>.05 level**
****Indicates significance at the p>.01 level**

Regression Models

Multiple regression was conducted to test if rape myth acceptance, alcohol use, and depression symptoms predicted a person's attitudes towards intention to intervene in the event of sexual violence. The model assumptions were assessed before the analysis. Scatter plots for each predictor variable were linear, and the Durbin-Watson statistic of 1.81 suggests no autocorrelation. The VIF statistics for the three variables were below five, indicating that multicollinearity was not an issue in this model ((rape myth acceptance = 1.036), (alcohol use = 1.043), (depression symptomology = 1.065)). The unadjusted model was significant $F(3, 396) = 9.37$, $p < 0.001$, *R square* = 0.66, adj. $R^2 = 0.059$, indicating that 6.6% of the variance in the model predicting a person's intention to intervene can be explained by the independent variables (i.e., rape myth acceptance, alcohol use, and depression symptoms). Rape myth acceptance significantly predicted intention to intervene $\beta = -.176$, $t = 3.56p < .001$. This indicated that those with higher rape myth acceptance have less intention to intervene. Alcohol use did not significantly predict intention to intervene $\beta = -.073$, $t = -1.45$, $p = .147$. Depression symptoms contributed the most to the model $\beta = -.214$, $t = -4.38$, $p < .001$. Those who report more symptoms of depression are less likely to intervene. See Table 3.3 for the unadjusted variable contributions to the model.

The adjusted model included the above variables but also added age and gender to understand their effect on the model. Model assumptions indicated that the model was a good predictor of a person's intention to intervene. Scatter plots were linear, and the Durbin-Watson statistic of 1.88 suggests no autocorrelation. Multicollinearity was not an issue as all tolerance values were above .870 and all VIF values below 1.15. The final model was significant, $F(5,$

394) = 8.41, $p < 0.001$, $R = .096$, adj. $R^2 = 0.085$ and explained 9.6% of the variance. Two of the variables significantly contributed to the model; Age was the largest predictor in the model ($\beta = .175$, $p < 0.001$), followed by depression symptomology ($\beta = -.149$, $p = .004$). This suggests that students who report less depression symptomology and are older have the highest intention to intervene. See Table 3.4 for all adjusted variables.

Table 3.3 Unadjusted Multiple Regression Rape Myth Acceptance, Alcohol Use, and Depression Symptoms Predicting Intention to Intervene

Measure	B (Unstandardized)	Std Error	B (standardized)	t	p-value
Rape Myth Acceptance	-.049	.014	-.176	-3.56	<.001
Alcohol Use	-.029	.020	-.073	-1.453	.147
Depression Symptomology	-.043	.010	-.214	-4.377	<.001

Table 3.4 Adjusted Multiple Regression Rape Myth Acceptance, Alcohol Use, Depression Symptoms, Age, and Gender Predicting Intention to Intervene

Measure	B (Unstandardized)	Std Error	B (standardized)	t	p-value
Rape Myth Acceptance	-.025	.014	-.089	-1.743	.082
Alcohol Use	-.003	.020	-.006	-.130	.896
Depression Symptomology	-.030	.010	-.149	-2.937	.004
Age	.155	.045	.175	3.433	<.001
Gender	-.328	.197	-.084	-1.664	.097

Gender Differences

The second aim was to understand gender differences among each measure. Both men (*m*=19.88) and women (*m*=18.01) had means greater than 16 for depression symptomology. This means that 52% of women and 53.5% of men reported elevated depression symptomology. Men (40%) reported alcohol use at a higher rate than women (34%). Women (62.8%) reported less rape myth acceptance than men (69.3%). Most men (85.91%) and women (89.36%) reported favorable intentions to intervene. See Table 3.1 for descriptives by gender.

Independent Samples T-Test

An independent samples T-test was conducted to compare the mean differences between the measures between men and women. The Levene's test for equal variances revealed a marginally significant difference between men and women in relation to bystander attitudes (Men: $M = 9.45$, SD=2.00; Women: $M = 9.83$, SD=1.87; t (398) = 1.96, $p = 0.051$ two-tailed) and differences had a small effect size (eta squared = .003), indicating that women have only slightly more favorable attitudes towards intention to intervene. The variance was assumed for depression symptomology (Men: $M = 19.88$, $SD = 7.85$; Women: $M = 18.01$, $SD = 10.73$; t (398) = -1.99, $p = 0.47$ two-tailed), but the differences between men and women were minor (eta squared = -0.0098) indicating that men report more symptoms of depression than women on average. Equal variance was assumed for the differences between rape myth acceptance (Men: $M = 36.01$, $SD = 6.42$; Women: $M = 32.66$, $SD = 1.87$; t (398) = -4.97, $p < 0.001$) and the differences between men and women was large (eta squared = -0.496) indicating that men accepted rape myths more than women. An equal variance was assumed for alcohol use (Men: $M = 12.81$, $SD = 5.85$; Women: $M = 10.88$, $SD = 3.35$; t = -4.04, p = <0.001). The differences

between men and women were large (eta squared = -0.404), indicating that men reported more alcohol use than women on average. Table 3.5 for the correlations by gender.

Regression Models by Gender

Multiple regression was conducted by isolating women and men in the study to predict intention to intervene using rape myth acceptance, alcohol use, and symptoms of depression. The model assumptions were assessed before the analysis. Scatter plots for each predictor variable were linear, and the Durbin-Watson statistic of 1.86 for women and 1.93 for men suggests no autocorrelation. The VIF statistics for the three variables were below five, indicating that multicollinearity was not an issue for both gender models.

The unadjusted model for women was significant $F(3, 196) = 9.13$, $p < 0.001$, *R square* = .123, adj. $R^2 = 0.109$, indicating that a person's intention to intervene explained 12.3% of the variance in the model. Rape myth acceptance significantly predicted women's intention to intervene $\beta = -.177$, $t = -2.541$, $p = .012$. Alcohol use did not significantly predict intention to intervene $\beta = -.023$, $t = -.458$, $p = .647$. Depression symptoms contributed the most to the model $\beta = - .271$, $t = -3.830$, $p < .001$. Those who report more symptoms of depression are less likely to intervene. See Table 3.6 for the unadjusted variable contributions to the model for women. The unadjusted model for men was not significant $F(3, 196) = 1.22$, $p = .30$, *R square* = .018, adj. $R^2 = 0.003$, indicating that the model is not a good fit for predicting a man's intention to intervene and explained only 1.8% of the variance. See Table 3.7 for how each variable performed in the model.

The adjusted model for women students included rape myth acceptance, alcohol use, depression symptomology, and age. Model assumptions indicated that the model was a good

predictor of women's intention to intervene. Scatter plots were linear, and the Durbin-Watson statistic of 1.94 suggests no autocorrelation. Multicollinearity was not an issue as all tolerance values were above .788 and all VIF values below 1.27. The final model was significant, $F(4, 195) = 7.90$, $p < 0.001$, $R = .139$, adj. $R^2 = .122$ and explained 13.9% of the variance. Rape myth acceptance significantly predicted women's intention to intervene $\beta = -.141$, $t = -1.983$, $p = .049$. Alcohol use did not significantly predict intention to intervene $\beta = -.023$, $t = -.458$, $p = .647$. Depression symptoms explained more of the model variance $\beta = - .223$, $t = -2.989$, $p = .003$. This suggests that women who report less depression symptomology and reject rape myths have a higher intention to intervene. See Table 3.8 for all adjusted variables.

The adjusted model for men included the same variables as the women model. Assumptions indicated that the model was a good predictor of men's intention to intervene. Scatter plots were linear, and the Durbin-Watson statistic of 1.97 suggests no autocorrelation. Multicollinearity was not an issue as all tolerance values were above .96 and all VIF values below 1.04. The final model was significant, $F(4, 195) = 2.66$, $p = .034$, $R = .052$, adj. $R^2 = 0.032$ and explained 5.2% of the variance. Age was the only significant predictor in the model $\beta = .180$, $t = 2.616$, $p = .010$. This indicates that older men are significantly likely to have more intention to intervene. See Table 3.9 for all variables. Though this model was statistically significant, the effect size was small and could be attributed more to age being a contributing factor than the other predictor variables.

Moderation Analysis

To understand the influence of gender on the relationship between depression symptoms, rape myth acceptance, and alcohol use when predicting intention to intervene, a moderation analysis was performed. The first model was significant and included attitudes towards intention

to intervene as the dependent variable and the predictor measures (rape myth acceptance, depression symptoms, and alcohol use), which explained 6.5% of the variance in intention to intervene, $R^2 = .065$, $F\ (3, 396) = 9.16$, $p < .001$. The second model added the interaction of gender and the predictor variables (gender x rape myth acceptance, gender x depression symptoms, and gender x alcohol use) and explained an additional 0.02% of the variance in the model, $R^2 = .059$, $F\ (3, 396) = 4.72$, $p < .001$. The third model added gender to the above models and explained an additional 0.02% of the model for a final explained variance of 6.9%, $R^2 = .069$, $F\ (3, 396) = 4.18$, $p < .001$. In the first model, rape myth acceptance ($B = -.037$, $SE = .014$, $\beta = -.134$, $t = -2.70$, $p = .008$) and depression symptoms ($B = -.038$, $SE = .011$, $\beta = -.185$, $t = -3.62$, $p > .001$) had predicted a person's attitudes towards intention to intervene if they saw a potential sexual assault. Alcohol use did not significantly impact attitudes toward the intention to intervene. In the second model, the only significant contributors to the model were rape myth acceptance ($B = -.038$, $SE = .017$, $\beta = -.135$, $t = -2.17$, $p = .030$) and depression symptoms ($B = -.039$, $SE = .012$, $\beta = -.188$, $t = -3.17$, $p = .002$). Alcohol use and interactions did not contribute significantly to the model. Rape myth acceptance ($B = -.047$, $SE = .020$, $\beta = -.168$, $t = -2.37$, $p = .018$) and depression symptoms ($B = -.039$, $SE = .012$, $\beta = -.188$, $t = -3.18$, $p = .002$) were the only significant contributors to the model. This suggests that students who report less depression symptomology and are less likely to accept rape myths have more favorable attitudes toward the intention to intervene, no matter their gender.

Table 3.5 Correlations Rape Myth Acceptance, Alcohol Use, and Depression Symptoms Predicting Intentions to Intervene by Gender

	Women				**Men**			
Measure	1	2	3	4	1	2	3	4
1 Intention to Intervene	**-**				-			
2 Rape Myth Acceptance	**-.24****	-			-.08	-		
3 Alcohol Use	-.07	**.17***	-		-.05	-.01	-	
4 Depression Symptoms	**-.24****	**.28****	**.21****	**-**	-.12	.09	**.25***	**-**

****Indicates significance at the p>.01 level**
*** Indicates significance at the p>.05 level**

Table 3.6 Unadjusted Multiple Regression Rape Myth Acceptance, Alcohol Use, and Depression Symptoms Predicting Intentions to Intervene for Women University Students

Measure	B (Unstandardized)	Std Error	B (standardized)	t	p-value
Rape Myth Acceptance	-.063	.018	-.237	-3.44	<.001
Alcohol Use	-.037	.040	-.066	-.93	.354
Depression Symptoms	-.055	.012	-.306	-4.52	<.001

Table 3.7 Adjusted Multiple Regression Rape Myth Acceptance, Alcohol Use and Depression Symptoms Predicting Intentions to Intervene for Women University Students

Measure	B (Unstandardized)	Std Error	B (standardized)	t	p-value
Rape Myth Acceptance	-.037	.019	-.141	-1.983	.049
Alcohol Use	.021	.039	.037	.541	.589
Depression Symptoms	-.040	.013	-.223	-2.989	.003
Age	.118	.061	.146	1.949	.053

Table 3.8 Unadjusted Multiple Regression Rape Myth Acceptance, Alcohol Use, and Depression Symptoms Predicting Intentions to Intervene for Men University Students

Measure	B (Unstandardized)	Std Error	B (standardized)	t	p-value
Rape Myth Acceptance	-.24	.022	-.077	-1.08	.281
Alcohol Use	-.017	.024	-.051	-.715	.475
Depression Symptoms	-.026	.016	-.11	-1.58	.116

Table 3.9 Adjusted Multiple Regression Rape Myth Acceptance, Alcohol Use, and Depression Symptoms Predicting Intentions to Intervene for Men University Students

Measure	B (Unstandardized)	Std Error	B (standardized)	t	p-value
Rape Myth Acceptance	-.013	.022	-.041	-.573	.568
Alcohol Use	-.009	.024	-.027	.383	.702
Depression Symptoms	-.020	.016	-.087	-1.222	.223
Age	.180	.069	.186	2.616	.010

Table 3.10 Model 1: Gender Moderation for Rape Myth Acceptance, Alcohol Use, and Depression Symptoms Predicting Intentions to Intervene for University Students

Measure	B (Unstandardized)	Std Error	B (standardized)	t	p-value
Rape Myth Acceptance	-.037	.014	-.134	-2.679	.008
Alcohol Use	-.007	.020	-.017	-.346	.729
Depression Symptoms	-.038	.011	-.185	-3.622	<.001

Table 3.11 Model 2: Gender Moderation for Rape Myth Acceptance, Alcohol Use, and Depression Symptoms Predicting Intentions to Intervene for University Students with Gender Interactions

Measure	B (Unstandardized)	Std Error	B (standardized)	t	p-value
Rape Myth Acceptance	-.038	.017	-.135	-2.174	.030
Alcohol Use	.018	.039	.045	.460	.646
Depression Symptoms	-.039	.012	-.188	-3.177	.002
Rape Myth Acceptance x Gender	.004	.017	.040	.251	.802
Alcohol Use x Gender	-.029	.044	-.115	-.669	.504
Depression Symptoms x Gender	.002	.018	.011	.097	.923

Table 3.12 Model 3: Gender Moderation for Rape Myth Acceptance, Alcohol Use, and Depression Symptoms Predicting Intentions to Intervene for University Students with Gender Interactions

Measure	B (Unstandardized)	Std Error	B (standardized)	t	p-value
Rape Myth Acceptance	-.047	.020	-.168	-2.374	.018
Alcohol Use	.006	.041	.016	.152	.879
Depression Symptoms	-.039	.012	-.188	-3.176	.002
Gender	-1.089	1.119	-.280	-.973	.331
Rape Myth Acceptance x Gender	.027	.029	.258	.937	.350
Alcohol Use x Gender	-.012	.047	-.048	-.258	.796
Depression Symptoms x Gender	.005	.018	.033	.279	.780

Discussion

Summary

This study examined the relationship between depression, alcohol use, and rape myth acceptance as predictors of student's attitudes towards intention to intervene in the event of sexual violence. Additionally, we aimed to determine if gender moderates the relationship between intention to intervene and the predictor variables. Only two factors, lower depression symptomology and not accepting rape myths, significantly predicted a person's intention to intervene in the event of a sexual assault. It is important to note that these findings were not very robust and only explained a small portion of the variance in the model. This suggests that other factors should be considered, such as appropriate scales for measuring the variables. The findings of this study provide insight into areas that may be the most impactful for interventions that address campus-related sexual violence.

Key Findings

Students overall had favorable attitudes towards the intention to intervene in a potentially sexually violent act. There were two factors, lower depression symptomology and acceptance of rape myths, that significantly predicted if a student had favorable intentions to intervene. Age was also found to determine a student's intentions. Campus-related sexual violence attitudes and behaviors were assessed among students who may not have ever experienced sexual violence, and this allows for a broader insight into the factors that students identify as important prevention efforts. The findings also highlight gender differences in depression, rape myth

acceptance, and drinking behaviors, though gender did not moderate the relationships between the predictors and bystander intention.

Students' attitudes towards the intention to intervene in the event of a sexually violent act were very positive. This indicates that most students agree that intervening if they see someone in a compromising situation is important. Globally, women are more likely to intervene than men (Franklin et al., 2020; Hackman et al., 2022; Mainwaring et al., 2023). Women had slightly more favorable attitudes toward intervening than men in this study, but the difference was slight. This finding aligns with studies among students in Western Africa, where women were significantly more likely to intervene than men (Boateng et al., 2024). This is important because knowing that students have these favorable attitudes can be leveraged into interventions for campus-related sexual violence and adds support for the bystander intervention to be incorporated at Makerere University.

Depression symptoms were the most salient predictor that a person would have less favorable attitudes towards intervening across all models. This is important because 70% of the students in the sample met the screening requirements for depression symptoms. These findings are a stark increase from the 30.5% of students who met depression criteria in 2012 and the 16.2% of first-year students in 2006 at Makerere (Ovuga et al., 2006, & Louis Henry et al., 2020). These findings are more in line with Kenyan university students who in 2014 reported indications of depression at over 40% (Othieno et al., 2014). Men in this study reported more symptoms of depression than women, and it was also found in a study of medical students at Makerere in 2020 (Olum et al., 2020b). Additionally, men who reported more depressive symptoms were more likely to be problem drinkers. This association has been established in the literature, not just for African students but globally; students who report symptoms of depression

are more likely to be problem drinkers (Anbesaw et al., 2023; Fitzke et al., 2024; Obasi et al., 2016; Pengpid et al.).

Endorsing rape myths was the second most salient factor in predicting if a student had favorable attitudes toward the intention to intervene. The more a student reported endorsing rape myths, the less likely they were to have favorable attitudes toward the intention to intervene; this was especially true for men. This finding aligns with the literature linking rape myth beliefs to inaction or justification of sexual violence. Students, regardless of gender, reported endorsing rape myths, though men were more likely to endorse these myths than women. This finding is consistent with global research (e.g., Fakunmoju et al., 2021a; Lathan et al., 2023). Not many studies have assessed depression symptoms and rape myth acceptance among survivors of sexual violence, and those that have looked at only this factor among survivors of sexual violence (Bernstein et al., 2024; Valdespino-Hayden et al., 2022). In this study, there was a correlation between endorsing rape myths and depression, indicating that depression symptoms may influence students' perceptions of endorsing rape myths. These findings could also be influenced by the masculine gender norms that are pervasive throughout sub-Saharan Africa.

One of the more surprising findings was that the overwhelming majority of students in this study did not drink alcohol. University students in the U.S. and other universities have much higher rates of drinking (Ay et al., 2025; Hosier & Cox, 2011). Alcohol use for youth in Uganda has been established in the literature (Swahn et al. 2018, Swahn et al. 2020), which is why this finding was interesting. It was more in line with Makerere students in 2012, where only 13.4% met the criteria for heavy episodic or alcohol use (Louis Henry et al., 2020). Alcohol use was not significantly associated with the intention to intervene. However, the relationship between alcohol use and rape myth acceptance was significant. Men reported more alcohol use than

women. However, a small number of women who reported alcohol use did report a higher indication of rape myth acceptance and had greater depression symptomology. The gender differences found between attitudes and behaviors that can lead to sexual violence, such as endorsing rape myths, having symptoms of depression, and drinking, should be explored further. This is a subset of the population who attends university in sub-Saharan Africa, and while this information is important, much more research is needed to validate these findings.

Limitations

While this study contributes to the literature, there are some limitations. Due to the slight variance found in the regression models, the findings are not robust enough for generalizability. This study did not include first-year students, those not attending classes at the main campus, and post-secondary students, which is not a complete representation of all students at Makerere. Also, this was a cross-sectional sample, and since this data was collected, campus-related sexual violence prevention efforts have been implemented at Makerere University.

Due to the length of the survey instrument and some of the questions within the measures determined not to be culturally appropriate, some of the measures used in this study were incomplete. For instance, the AUDIT was missing one of the ten questions on the scale. Two bystander scale questions were combined on the software, so those two questions could not be included in the scale. Rape myth acceptance was missing more than five questions. The only complete scale was the depression scale.

This study did not assess if the participants had been survivors of a previously sexually violent act. The literature on campus-related sexual violence focuses on survivors of sexual violence, and this was not assessed in this study. However, this can be considered a limitation

and a strength of this study. This is a limitation because we are not sure of the prevalence of survivors of sexual violence or of those who may have experienced sexual violence on campus, which limits our speculation on the motivation for a person's intention to intervene. This is also a strength because we know more about the attitudes and behaviors of students regardless of their past experiences and include those who may have never experienced sexual violence.

Implications

The findings of this study can add to the sparse literature about factors related to campus-related sexual violence in Sub-Saharan African university settings. To date, this is the first assessment of attitudes towards intervening in the event of a potential sexual assault among university students in Uganda. This study highlights depression and rape myth acceptance as central factors for sexual violence prevention programming. Given the high prevalence of depressive symptoms among Makerere students, addressing mental health should be addressed for students. Depression may reduce students' motivation, confidence, or emotional states, and prioritizing the availability of mental health resources is imperative.

Challenging rape myths may help shift cultural narratives that justify or minimize sexual violence. Given that over two-thirds of students endorsed rape myths, prevention programming should focus on debunking these harmful beliefs, particularly among male students who scored significantly higher on this measure. These findings align with work by Lyons et al. (2022) on gender discrepancy stress and intimate partner violence, which also found stronger endorsement of harmful gender norms among men in Uganda.

Prevention programs should include explicit content to dismantle these beliefs, incorporating gender-specific modules when appropriate. Given that male students in this study

were significantly more likely to endorse rape myths and report alcohol use, interventions targeting male populations may require a tailored, multifaceted approach.

The finding that most students were not engaged in heavy drinking challenges some of the assumptions found in broader literature and suggests that alcohol-based intervention components may need to be contextually adapted. The correlation between alcohol use and rape myth acceptance, particularly among those who are problem drinkers, suggests that any prevention effort must still consider how substance use may interact with attitudes about sexual violence.

These findings provide insight into the predictors of bystander intervention in a Sub-Saharan African university context. Depression emerged as a strong and consistent barrier to intervention, highlighting the need for expanded and destigmatized mental health services on campus. That 70.2% of students met the CES-D-20 cutoff for depression is alarming and suggests an urgent need for intervention. This supports earlier findings by Culbreth et al. (2024), who highlighted high rates of depression and life dissatisfaction among young women in Kampala, suggesting that university students may experience similar psychosocial stressors.

Future Research Recommendations

Several avenues for future research emerge from these findings. First, future studies should assess the cultural appropriateness of depression screening tools specifically for African university students. While the CES-D-20 was used in this study, many previous studies at African universities have employed the SRQ-20, and comparative analyses would help identify the most appropriate and sensitive measures.

Second, future research should investigate the prevalence of sexual violence experiences among university students. Understanding how personal victimization or witnessing violence influences attitudes toward intervention would offer critical insight into how behavioral intentions are shaped. This study did not assess whether participants had previously experienced sexual violence, which could be a crucial moderating factor. Additionally, having a reporting system for sexual violence occurring on campus would be recommended and encouraged, as these survivors should have access to any services they may need.

Third, more qualitative research is needed to explore why students may or may not choose to intervene. Understanding the barriers (e.g., fear of retaliation, lack of confidence, social norms) and motivators (e.g., empathy, perceived responsibility, peer influence) for bystander intervention could provide a richer, more nuanced picture of these behaviors in a Ugandan university context.

Finally, longitudinal designs would be valuable in establishing causal relationships and tracking attitude changes over time. For example, implementing a campus-wide bystander intervention program and evaluating its effectiveness over several semesters could yield important data on the sustainability of attitudinal and behavioral changes.

Conclusion

In conclusion, this study sought to understand the relationship between depression, rape myth acceptance, and alcohol use has on a person's attitudes toward intervening in a potentially sexually violent act. Studies have assessed these relationships around the globe, but the need to understand these relationships can have a large impact on interventions designed for the specificities of this population. The students have favorable attitudes toward the intention to

intervene, but the acceptance of rape myths could have an impact on a person's ultimate decision to intervene or not. Using these findings could help to tailor interventions and provide valuable insight to students on the high prevalence of sexual violence that is happening in the communities they may one day work in. These students are the future leaders in Uganda and could be pivotal in changing policy around sexual violence.

Table 3.13 CES-D-20 Depression Symptomology Items

Center for Epidemiological Studies Depression Scale	N	%	Women	Men
I was bothered by things that usually don't bother me				
Most of the Time	19	4.80	14 (7.00)	8 (2.50)
Occasionally or a moderate amount of time (3-4) days	34	8.50	16 (8.00)	18 (9.00)
Some or a little of the time (1-2 days)	132	33.00	51 (25.50)	81 (40.50)
Rarely or none of the time (less than 1 day)	215	53.80	119 (59.50)	96 (48.00)
I did not feel like eating; my appetite was poor				
Most of the Time	16	4.00	8 (4.00)	8 (4.00)
Occasionally or a moderate amount of time (3-4) days	41	10.30	19 (9.50)	22 (11.00)
Some or a little of the time (1-2 days)	118	29.50	56 (28.00)	62 (31.00)
Rarely or none of the time (less than 1 day)	225	56.30	117 (58.50)	108 (54.00)
I felt that I could not shake off the sadness even with help from my family or friends				
Most of the Time	31	7.80	17 (8.50)	14 (7.00)
Occasionally or a moderate amount of time (3-4) days	47	11.80	18 (9.00)	29 (14.50)
Some or a little of the time (1-2 days)	100	25.00	44 (22.00)	56 (28.00)
Rarely or none of the time (less than 1 day)	222	55.50	121 (60.50)	101 (50.50)
I felt I was just as good as other people				
Most of the Time	112	28.00	54 (26.00)	43 (21.50)
Occasionally or a moderate amount of time (3-4) days	98	24.50	55 (27.50)	56 (28.00)
Some or a little of the time (1-2 days)	95	23.80	39 (19.50)	43 (21.50)
Rarely or none of the time (less than 1 day)	95	23.80	52 (26.00)	58 (29.00)
I had trouble keeping my mind on what I was doing				
Most of the Time	44	46.00	20 (10.00)	24 (12.00)
Occasionally or a moderate amount of time (3-4) days	55	29.30	24 (12.00)	31 (15.5)
Some or a little of the time (1-2 days)	117	13.80	53 (26.50)	64 (32.00)
Rarely or none of the time (less than 1 day)	184	11.00	103 (51.50)	81 (40.50)
I felt depressed				
Most of the Time	196	49.00	19 (9.50)	16 (8.00)
Occasionally or a moderate amount of time (3-4) days	117	29.30	21 (10.50)	31 (15.5)
Some or a little of the time (1-2 days)	52	13.00	53 (26.50)	64 (32.00)

Rarely or none of the time (less than 1 day)	35	8.800	107 (53.50)	89 (44.50)
I felt that everything I did was an effort				
Most of the Time	110	27.50	48 (36.00)	62 (31.00)
Occasionally or a moderate amount of time (3-4) days	82	20.50	39 (19.50)	43 (21.50)
Some or a little of the time (1-2 days)	95	23.80	41 (20.50)	54 (27.00)
Rarely or none of the time (less than 1 day)	113	28.20	72 (36.00)	41 (20.50)
I felt hopeful about the future				
Most of the Time	185	46.30	92 (46.00)	93 (46.50)
Occasionally or a moderate amount of time (3-4) days	91	22.80	50 (25.00)	41 (20.50)
Some or a little of the time (1-2 days)	66	16.50	23 (11.50)	43 (21.50)
Rarely or none of the time (less than 1 day)	58	14.50	35 (17.50)	23 (11.50)
I thought my life had been a failure				
Most of the Time	24	6.00	15 (7.50)	9 (54.50)
Occasionally or a moderate amount of time (3-4) days	43	10.80	17 (8.50)	26 (13.00)
Some or a little of the time (1-2 days)	94	23.50	38(19.00)	56 (28.00)
Rarely or none of the time (less than 1 day)	239	59.80	130 (65.00)	109 (54.50)
I felt fearful				
Most of the Time	34	8.50	22 (11.00)	12 (6.00)
Occasionally or a moderate amount of time (3-4) days	56	14.00	27 (13.50)	29 (14.50)
Some or a little of the time (1-2 days)	119	29.80	47 (23.50)	72 (36.00)
Rarely or none of the time (less than 1 day)	191	47.80	104 (52.00)	87 (43.50)
My sleep was restless				
Most of the Time	43	10.80	17 (8.50)	26 (13.00)
Occasionally or a moderate amount of time (3-4) days	52	13.00	28 (14.00)	24 (12.00)
Some or a little of the time (1-2 days)	108	27.00	46 (14.00)	62 (31.00)
Rarely or none of the time (less than 1 day)	197	49.30	109 (54.50)	88 (44.00)
I was happy				
Most of the Time	119	24.00	56 (29.50)	37 (18.50)
Occasionally or a moderate amount of time (3-4) days	94	70.30	45 (20.00)	51 (25.50)
Some or a little of the time (1-2 days)	91	46.80	40 (22.50)	49 (24.50)
Rarely or none of the time (less than 1 day)	96	24.0	59 (28.00)	63 (31.50)
I talked less than usual				
Most of the Time	35	8.80	18 (9.00)	17 (8.50)

Occasionally or a moderate amount of time (3-4) days	58	14.50	30 (15.00)	28 (14.00)
Some or a little of the time (1-2 days)	128	32.00	52 (26.00)	76 (38.00)
Rarely or none of the time (less than 1 day)	179	44.80	100 (50.00)	79 (39.50)
I felt lonely				
Most of the Time	30	7.50	19 (9.50)	11 (5.50)
Occasionally or a moderate amount of time (3-4) days	52	13.00	24 (12.00)	28 (14.00)
Some or a little of the time (1-2 days)	105	26.30	43 (21.50)	62 (31.00)
Rarely or none of the time (less than 1 day)	213	53.30	114 (57.00)	99 (49.50)
People were unfriendly				
Most of the Time	28	7.00	18 (9.00)	10 (5.00)
Occasionally or a moderate amount of time (3-4) days	63	15.80	25 (12.50)	38 (19.00)
Some or a little of the time (1-2 days)	99	24.80	41 (20.50)	58 (29.00)
Rarely or none of the time (less than 1 day)	210	52.50	116 (58.00)	94 (47.00)
I enjoyed life				
Most of the Time	86	21.50	35 (17.50)	51 (25.50)
Occasionally or a moderate amount of time (3-4) days	102	25.50	44 (22.00)	58 (29.00)
Some or a little of the time (1-2 days)	86	21.50	38 (19.00)	48 (24.00)
Rarely or none of the time (less than 1 day)	126	31.50	83 (41.50)	43 (21.50)
I had crying spells				
Most of the Time	23	5.80	15 (7.50)	8 (4.00)
Occasionally or a moderate amount of time (3-4) days	42	10.50	26 (13.00)	16 (8.00)
Some or a little of the time (1-2 days)	82	20.50	37 (18.50)	45 (22.50)
Rarely or none of the time (less than 1 day)	253	63.20	122 (61.00)	131 (65.50)
I felt sad				
Most of the Time	33	8.30	17 (8.50)	16 (8.00)
Occasionally or a moderate amount of time (3-4) days	59	14.80	25 (12.50)	34 (17.00)
Some or a little of the time (1-2 days)	101	25.30	52 (26.00)	49 (24.50)
Rarely or none of the time (less than 1 day)	207	8.30	106 (53.00)	101 (50.50)
I felt that people disliked me				
Most of the Time	25	6.30	12 (6.00)	13 (6.50)
Occasionally or a moderate amount of time (3-4) days	47	11.80	22 (11.00)	25 (12.50)
Some or a little of the time (1-2 days)	89	22.30	44 (22.00)	45 (22.50)
Rarely or none of the time (less than 1 day)	239	59.80	122 (61.00)	117 (58.50)

I could not get going				
Most of the Time	21	5.30	14 (7.00)	7 (3.50)
Occasionally or a moderate amount of time (3-4) days	48	12.00	25 (12.50)	23 (11.50)
Some or a little of the time (1-2 days)	99	24.80	36 (18.00)	63 (31.50)
Rarely or none of the time (less than 1 day)	232	58.00	125(62.50)	107 (53.50)

Table 3.14: AUDIT (Alcohol Use Scale Items)

Alcohol Use (AUDIT)	N	%	Women	Men
How often do you have a drink containing alcohol?				
4 or more times a week	2	0.50	0 (0.00)	2 (1.00)
2 to 3 times a week	19	4.80	2 (1.00)	17 (8.50)
Monthly or less	51	12.80	24 (12.00)	27 (13.50)
Never	46	11.50	22 (11.00)	24 (12.00)
How many bottles of drinks containing alcohol do you have on a typical day when you are drinking?	282	70.50	152 (76.00)	130 (65.00)
10 or more	1	72.00	0 (0.00)	1 (0.50)
7, 8, or, 9	2	15.30	1 (0.50)	1 (0.50)
5 or 6	12	9.00	3 (1.50)	9 (4.50)
3 or 4	36	3.00	14 (7.00)	22 (11.00)
1 or 2	61	0.50	29 (14.50)	32 (16.00)
Never	288	0.30	153 (76.50)	135 (67.50)
How often do you have six or more drinks on one occasion?				
Weekly	5	1.30	0 (0.00)	5 (2.5)
Monthly	32	8.00	12 (6.00)	20 (10.00)
Less than Monthly	20	5.00	10 (5.00)	10 (5.00)
3 or 4	25	6.30	11 (5.50)	14 (7.00)
Never	318	79.50	167 (83.50)	151 (75.50)
How often during the last 12 months have you found that you were not able to stop drinking once you had started?				
Daily or Almost Daily	4	1.00	1 (0.50)	3 (1.50)
Weekly	6	1.50	1 (0.50)	5 (2.50)
Monthly	20	5.00	6 (3.00)	14 (7.00)
Less than Monthly	26	6.50	11 (5.50)	15 (7.50)
Never	344	86.00	181 (90.50)	163 (81.50)
How often during the 12 months have you failed to do what was normally expected from you because of drinking?				
Daily or Almost Daily	1	0.30	1 (0.50)	0 (0.00)
Weekly	6	1.50	0 (0.00)	6 (3.00)
Monthly	12	3.00	3 (1.50)	9 (4.50)

Less than Monthly	22	5.50	1 (2.00)	14 (7.00)
Never	359	89.80	188 (96.00)	171 (85.50)
How often during the 12 months have you been unable to remember what happened the night before because you had been drinking?				
Daily or Almost Daily	3	0.80	1 (0.50)	2 (1.00)
Weekly	5	1.30	0 (0.00)	5 (2.50)
Monthly	8	2.00	3 (1.50)	5 (2.50)
Less than Monthly	20	5.00	4 (2.00)	16 (8.00)
Never	364	91.00	192 (96.00)	12 (86.00)
How often during the 12 months have you needed a drink first thing in the morning to get yourself going after a night of heavy drinking?				
Daily or Almost Daily	3	0.80	1 (0.50)	2 (1.00)
Weekly	5	3.80	0 (0.00)	5 (2.50)
Monthly	10	2.50	2 (1.00)	8 (4.00)
Less than Monthly	15	3.80	8 (4.00)	7 (3.50)
Never	367	91.80	189 (94.50)	178 (89.00)
How often during the 12 months have you had a feeling of guilt or remorse after drinking?				
Daily or Almost Daily	7	1.80	1 (0.50)	6 (3.00)
Weekly	9	2.30	0 (0.00)	9 (4.50)
Monthly	13	3.30	6 (3.00)	7 (3.50)
Less than Monthly	26	6.50	11 (5.50)	15 (7.50)
Never	345	86.30	182 (91.00)	163 (81.50)
Have you or someone else been injured as a result of your drinking?				
Yes, during the last year	53	13.30	19 (9.50)	34 (17.00)
Yes, but not in the last year	55	13.80	20 (0.00)	35 (17.50)
No	292	73.00	161 (80.50)	131 (65.50)

Table 3.15: Illinois Rape Myth Acceptance Scale Items

Illinois Rape Myth Acceptance Scale	N	%	Women	Men
A girl who goes to the home or room of a man on their first date implies that she is willing to have sex				
Strongly Agree	55	13.80	17 (8.50)	38 (19.00)
Agree	60	15.00	23 (11.50)	37 (18.50)
Disagree	188	47.00	103 (51.50)	85 (42.50)
Strongly Disagree	97	24.30	57 (28.50)	40 (20.00)
One reason that girls falsely report a rape is that they frequently have a need to be the center of attention				
Strongly Agree	60	15.00	17 (8.50)	43 (21.50)
Agree	123	30.80	46 (23.00)	77 (38.50)
Disagree	159	39.80	96 (48.00)	63 (31.50)
Strongly Disagree	58	14.50	17 (8.50)	17 (8.50)
If a girl goes to a room alone with a guy at a party, it is her own fault if she is raped				
Strongly Agree	106	26.50	43 (21.50)	63 (31.50)
Agree	104	26.00	48 (24.00)	56 (28.00)
Disagree	133	33.33	79 (39.50)	54 (27.00)
Strongly Disagree	57	14.20	30 (15.00)	27 13.50)
If a girl acts like a slut, eventually, she is going to get into trouble				
Strongly Agree	165	41.30	88 (44.00)	77 (38.50)
Agree	163	40.80	72 (36.00)	91 (45.50)
Disagree	46	11.50	22 (11.00)	24 (12.00)
Strongly Disagree	26	6.50	18 (9.00)	8 (4.00)
If a girl initiates kissing or hooking up, she should not be surprised if a guy assumes she wants to have sex				
Strongly Agree	154	38.50	62 (31.00)	92 (46.00)
Agree	187	46.80	101 (50.50)	86 (43.00)
Disagree	39	9.80	21 (10.50)	18 (9.00)
Strongly Disagree	20	5.00	16 (8.00)	4 (2.00)
If a guy is drunk, he might rape someone unintentionally				

Strongly Agree	89	22.30	46 (23.00)	43 (21.50)
Agree	118	29.50	44 (22.00)	74 (37.00)
Disagree	126	31.50	73 (36.50)	53 (26.50)
Strongly Disagree	67	16.8	37 (18.50)	30 (15.00)
It shouldn't be considered rape if a guy is drunk and didn't realize what he was doing				
Strongly Agree	52	13.00	25 (12.50)	27 (13.50)
Agree	73	18.30	23 (11.50)	50 (25.00)
Disagree	148	37.00	79 (39.50)	69 (24.50)
Strongly Disagree	127	31.80	73 (36.50)	54 (27.00)
If both people are drunk, it can't be rape				
Strongly Agree	89	22.30	48 (24.00)	41 (20.50)
Agree	99	24.80	32 (16.00)	67 (33.50)
Disagree	135	33.80	83 (41.50)	52 (26.00)
Strongly Disagree	77	19.30	37 (18.50)	40 (20.00)
The majority of rapes reported by university girls are from girls who agreed to have sex and then regretted it later				
Strongly Agree	88	22.00	33 (16.50)	55 (27.50)
Agree	116	29.00	42 (21.00)	74 (37.00)
Disagree	144	36.00	88 (44.00)	56 (28.00)
Strongly Disagree	52	13.00	37 (18.50)	15 (7.50)
If a girl doesn't say "no," she can't claim rape				
Strongly Agree	98	26.00	46 (23.00)	52 (26.00)
Agree	124	18.50	44 (22.00)	80 (40.00)
Disagree	74	31.00	39 (19.50)	35 (17.50)
Strongly Disagree	104	24.50	71 (35.50)	33 (16.50)
If a girl was really raped, she would go straight to the police instead of waiting a long time to tell anyone				
Strongly Agree	217	54.30	112 (56.00)	105 (52.50)
Agree	107	26.80	47 (23.50)	60 (30.00)
Disagree	49	12.30	22 (11.00)	27 (13.50)
Strongly Disagree	27	6.80	19 (9.50)	8 (4.00)

If a girl doesn't physically fight back, you can't really say it was rape				
Strongly Agree	91	22.80	43 (21.50)	48 (24.00)
Agree	104	26.00	45 (22.50)	59 (29.50)
Disagree	118	29.50	64 (32.00)	54 (27.00)
Strongly Disagree	87	21.80	48 (24.00)	39 (19.50)
Girls who get caught cheating on their boyfriends sometimes claim rape				
Strongly Agree	72	18.00	33 (16.50)	39 (19.50)
Agree	136	34.00	52 26.00)	84 (42.00)
Disagree	138	34.50	96 (48.00)	53 (26.50)
Strongly Disagree	54	13.50	41 (20.50)	24 (12.00)

Table 3.16: Bystander Efficacy Scale Items

Bystander Attitudes	N	%	Women	Men
I would stop and check in with a friend who looked very drunk when they were being taken at a party or home with someone they just met				
Yes	319	79.80	163 (81.50)	156 (78.00)
No	81	20.30	37 (18.50)	44 (22.00)
If I saw a friend grabbing or pushing their partner, I would say something to stop them				
Yes	354	88.50	181 (90.50)	173 (86.50)
No	46	11.5	19 (9.50)	27 (13.50)
If I saw a friend taking a very drunk person to their room, I would say something and ask what they were doing				
Yes	334	83.50	177 (88.50)	157 (78.50)
No	66	16.50	23 (11.50)	43 (21.50)
I would tell a friend if I am convinced their drink may have been spiked with a drug				
Yes	354	88.50	182 (91.00)	172 (86.00)
No	46	11.50	18 (9.00)	28 (14.00)
If I see a man talking to a female friend and I see she is uncomfortable, I would ask her if she is okay or try to start a conversation with her				
Yes	323	80.80	173 (86.00)	150 (75.00)
No	77	19.30	28 (14.00)	50 (25.00)
If I heard sounds of yelling and fighting coming from a friend's or other person's room, I would knock on the door to see if everything is okay				
Yes	348	87.00	172 (86.00)	176 (88.00)
No	52	13.00	28 (14.00)	24 (12.00)
I would call the police or other authorities if I suspect that a friend has been drugged				
Yes	359	89.80	179 (89.50)	180 (90.00)
No	41	10.30	21 (10.50)	20 (10.00)

I would call the police or other authorities if I hear sounds of yelling and fighting				
Yes	346	86.50	175 (87.50)	346 (86.50)
No	54	13.50	25 (12.50)	54 (13.50)
I would make sure a friend does not leave a drunk friend behind at a party				
Yes	379	94.80	192 (96.00)	187 (93.50)
No	21	5.30	8 (4.00)	13 (6.50)
If a friend had too much to drink, I would ask them if they needed to be escorted home from the party				
Yes	370	92.50	187 (93.50)	185 (92.50)
No	30	7.50	13 (6.50)	15 (7.50)

CHAPTER 4

SEXTING, ALCOHOL USE, LIVING ON CAMPUS, AND ENGAGING RISKY SEX: RISK AND PROTECTIVE FACTORS FOR UGANDA STUDENTS

May, A.C., Callands, T.A., Hansen, N., Sekandi, J., Swahn, M. H. to be submitted to PLOS Global Health

SEXTING, ALCOHOL USE, LIVING ON CAMPUS, AND ENGAGING RISKY SEX: RISK AND PROTECTIVE FACTORS FOR UGANDA STUDENTS

Abstract

IMPORTANCE: Sexting has become much more prevalent in recent years. The link between risky sex, alcohol use, and sexting has been established and was supported in this study.

OBJECTIVE: To understand if a relationship exists between sexting, risky sex, alcohol use, and where you live on campus. Additionally, to see if gender differences will be found among the attitudes and behaviors of these relationships.

DESIGN, SETTING, AND PARTICIPANTS: A survey of 400 students, 200 men, and 200 women, was conducted in 2019 at Makerere University. The purpose of this study was to explore the attitudes and behaviors of students on topics such as technology availability, sexting, risky sex behaviors, alcohol use, and where you live on campus outcomes.

MEASURES AND OUTCOMES: Sexting attitudes and behaviors were assessed using a composite score from specific items to these two topics. Alcohol use was assessed using the AUDIT-10, and living on campus was asked in the demographic's questions.

RESULTS: There were 400 students who participated in the study, 200 men and 200 women, and most were 23 years old. Almost 15% of the students reported living in university housing. When asked about sexual behaviors, 77% had sex at least once in their lifetime, and the age of debut was around age 18. Most students have had sex with three partners in their lifetime.

Alcohol use was very low. Risky sex behaviors included inconsistent condom use (66.2%) but reported using condoms at the last sexual encounter at 67.2%. Most students reported having one (59.4%) partner in the last 3 months. Most of the students do not engage in sexting behaviors. Forty percent of the students engaged in one risky sex behavior. Sexting behaviors and attitudes, alcohol use, and risky sex behaviors were significant at the $p > 0.05$ level. At the $p < .001$ level, sexting behaviors were no longer significant. Sexting attitudes was significantly corelated with sexting behaviors $r(398) = .211$, $p < .001$ and risky sex behaviors, $r(398) = .142$, $p < 0.001$. Gender differences were found; women who drink alcohol and have favorable attitudes towards sexting were positively correlated ($r(398) = .321$, $p < 0.001$), and of the women who drink, they were more likely to engage in risky sex behaviors ($r(398) = .185$, $p < 0.001$). Living on campus may be a protective factor in engaging in risky sex ($r(398) = -.150$, $p < 0.05$). For men, risky sex and sexting attitudes were positively correlated ($r(398) = .168$, $p < 0.005$). Alcohol use and sexting attitudes were also positively correlated ($r(398) = .179$, $p < 0.005$).

CONCLUSION: The relationship between sexting, alcohol use, and engaging in risky sex was found to be significant among the students. This puts them, specifically women, at greater risk of technology-facilitated sexual violence.

Introduction

Sexual violence is common at universities, not just in the United States but globally, and affects a disproportionate number of women (Arnold et al., 2008; Fisher et al., 2000; Iyanda et al., 2021; Philpart et al., 2009; Schuster et al., 2016; Wellum et al., 2023). Globally, the prevalence of sexual violence is estimated to be 17.5% among women and 7.8% among men (Steele et al., 2023). A meta-analysis of sexual violence among university students in 22 countries worldwide reports that prevalence was highest in Africa (16.3%), compared to South America (13.9%) and Asia (4.2%) (Pengpid & Peltzer, 2016). A meta-analysis of male and female students in higher education was conducted and found that students attending school in the African region reported the highest prevalence of sexual violence was perpetrated against female students (25.9%), followed by female students in the United States (17.9), European and Western Pacific region female students (15.6%) (Steele et al., 2023). The consequences of sexual violence for women attending university in South Africa included no condom use during rape (27.3%), inability to take exams (46.8%), becoming pregnant and having an abortion (14.2%), and (79.2%) worried about being raped when they walked alone at night (Mutinta, 2022).

The World Health Organization (WHO) defines sexual violence as "any sexual act, attempt to obtain a sexual act, or other act directed against a person's sexuality using coercion, by any person regardless of their relationship to the victim, in any setting. It includes rape, defined as the physically forced or otherwise coerced penetration of the vulva or anus with a penis, other body part or object, attempted rape, unwanted sexual touching, and other non-contact forms" (World Health Organization, 9 March 2021). The definition of sexual violence is

the most comprehensive for all types of sexual violence because it includes both actual and attempted unwanted sexual contact and includes the definitions for both intimate partner violence and sexual assault. For this paper, sexual violence will describe both sexual assault, intimate partner violence, and sexual violence.

A form of sexual violence that is emerging is technology-facilitated sexual violence. Technology-facilitated sexual violence (TFSV) is another form of sexual violence and is defined as "any sexual violence occurring through the use of technology" (Powell, 2020). The behavior of sexting has been associated with TFSV (Patel & Roesch, 2020). Sexting is defined as "the sending of sexually explicit messages or images by cellphone" (Brown, 2020). The prevalence of TFSV was assessed in a global meta-analysis using 25 articles, and it found that between seven and 17% of participants have been victimized by sexting behaviors (Patel & Roesch, 2020). A meta-analysis by Mori et al. found that gender differences exist between men and women when it comes to sexting. Women are more likely to report having their sexts forwarded without their consent and are more likely to be the victims of harassment (Mori et al., 2020). The consequences for victims of TFSV are the same as those of victims of physical sexual assault, which include depression, anxiety, decreased self-esteem, and reports of PTSD (Patel & Roesch, 2020; Powell, 2020).

Studies have assessed the association between engaging in sexting and risky sexual behaviors (Brodie et al., 2019; Gordon-Messer et al., 2013; Ingram et al., 2019; Makgale & Plattner, 2017). The link between sexual violence and sexting behaviors, especially for women, has recently received more attention in the literature. (Dir et al., 2018; Krieger, 2017; Salerno-Ferraro et al., 2022). Among women attending university in Nigeria, those who sent nude photos were 2.5 times more likely to engage in behaviors associated with risky sex (Ayinmoro et al.,

2020). Sexting is a mediator in the relationship between alcohol use and sexual violence (Dir et al., 2018). Correlations, though weak, were found among sexting and a higher number of sexual partners among African university students (Makgale & Plattner, 2017).

Sexting prevalence varies widely among people aged 18-24 in the United States. Those attending university report higher sexting rates compared to their same-age counterparts who are not attending university. A study in 2013 of all U.S. residents aged 18-24 found that 57% of the participants did not sext (Gordon-Messer et al., 2013). Sexting behaviors are common among university students but vary widely globally. A meta-analysis of 50 studies with participants aged 18-29 who did not have to be university students found prevalence rates to be 38.3% (Mori et al., 2020). University students in the United States had the most considerable prevalence rates, with 100% to 70% of participants sending a sext and 94% to 74% receiving or sending a sexually suggestive text or photo (Cornelius et al., 2020; Hudson et al., 2014; Ingram et al., 2019). These rates are very different for students in Africa. While research is still in its infancy on this topic, a few studies are looking at sexting behaviors among African university students. Students in Botswana reported sexting at least once (30.1%) (Makgale & Plattner, 2017). Women attending university in Nigeria reported sexting rates at 47% (Ayinmoro et al., 2020).

Methods

Study Design and Eligibility

The current study utilizes cross-sectional survey data collected from students attending Makerere University, a large urban university in Kampala, Uganda, from February to November 2019. The purpose of this study was to understand the attitudes and behaviors of students on topics such as drinking, technology use, sexting, and sexual behavior outcomes. Study

participants were recruited using admission data from all students at Makerere University. Eligibility requirements included being 18 years or older and currently enrolled in years 2-5 of their undergraduate education. Exclusion criteria included students who did not attend Makerere's main campus, were not currently pursuing an undergraduate degree, or were enrolled in their first year at the university.

Ethical Considerations

Two IRBs approved this study, one from the University of Georgia, where the PI and Co-PI are faculty, and the other from Makerere University, where the PI holds a joint faculty position and the participants were recruited. Informed consent was administered and obtained via an online form. Participants were systematically sampled from an electronic database of students enrolled at Makerere University and invited to enroll voluntarily. Eligible participants were 18 or older and registered in years 2, 3, 4, or 5 of their undergraduate studies. Year 1 students were excluded from the study because they had only been enrolled in the university for a few months, and the questions were intended to capture lived experiences during college. Once a participant was confirmed eligible for the study, they were required to read the first page of the questionnaire, which contained a brief description of the research, risks and benefits of participating, and research goals. After reviewing the research description, participants consented to participate by choosing the response "ok" at the end of the page, indicating that participants had reviewed the information and were interested in participating in the survey. This step was required before proceeding with the survey.

Participant Recruitment

An electronic database containing records of approximately 35,000 undergraduate students facilitated recruitment, which was accessed and used with permission through the university's Counselling and Guidance Center. The database served as a sampling frame for systematic stratified random sampling to facilitate the inclusion of undergraduate students in 5 years of academic study and a balance in sex. We employed three specific recruitment strategies to invite students to participate in the survey. First, mass emails were sent to all students selected in the first round of sampling. Second, bulk text messages were sent to the phone numbers obtained from the official university electronic database. Finally, phone calls were made directly to all students selected from the database, inviting them to participate voluntarily in the study. This process was repeated until a sample size of 400 was obtained, 200 males and 200 females. A pragmatic approach to sampling was conducted based on the available resources and timeframe to complete the pilot study.

Data Collection Procedure

Eligible students who consented to participate in the online survey received a link via e-mail to access and complete the questionnaire. Students could take the survey on any device (laptop, mobile phone, tablet). Questionnaires were self-administered in English and took about 30 minutes to complete. After completing the survey, participants were given unique codes to redeem reward coupons for free internet or airtime worth $2.00.

Survey

The survey instrument consisted of measures to assess bystander attitudes about the intention to help in the event of potential sexual violence, rape myth acceptance, alcohol use,

sexting, sexual risk behaviors, and technology use. Demographics such as age, major field of study, and sociodemographic questions were answered by the participants. Questionnaires measuring key study constructs were identified from previously validated studies and rape myth acceptance ((Payne et al., 2014), and the AUDIT drinking questionnaire (Bush et al., 2018)).

Measures

Sexting Attitudes

Sexting attitudes were measured using 10 questions that assessed attitudes related to sexting. Questions about sexting attitudes included, “There is no harm in sexting,” “Sexting is fun,” “Have you received sexually suggestive nude or nearly nude photo or video of someone else you know on your cellphone?,” and “I think sexting may cause me problems in the future.” The responses to these questions range from “Not at all true,” “Rarely true,” “Somewhat true,” “Mostly true,” and Absolutely true.” These questions were added together to create a score for sexting attitudes, and higher scores were aligned with favorable attitudes toward sexting.

Sexting Behaviors

Sexting behaviors were measured using six questions related to behaviors performed about sexting. Behavioral Questions about sexting included, “Have you ever received a sexually suggestive nude or nearly nude photo or video of yourself to someone else using your cellphone?,” and “Have you forwarded a sexually suggestive nude or nearly nude photo or video of someone else you know using your cell phone?”, and “Have you ever had sex with someone you met on a dating app?”. Responses to these questions were “Yes” and “No.” Two questions asked about sharing sexts, “I share the sexts I receive with my friends,” and “I share the sexts I send with my friends.” The responses to these questions were answered on a Likert Scale of 1

being “not true,” and 5 “absolutely true.” For this analysis, any sharing of sexts is considered a behavior, so these were recoded into categorical variables, with zero corresponding with not engaging in the behavior and 1-5 coded as engaging in the behavior. The scores were added together, ranging from zero to five, with zero not engaging in the behaviors and five engaging the most.

Alcohol Use

Alcohol use was measured by using the first nine questions of the AUDIT scale. While the AUDIT is typically a 10-item scale, one question was removed for cultural appropriateness. To correctly identify alcohol use, participants were asked to indicate how often they drank alcohol and if drinking alcohol was interrupting their daily lives using a scale of 1=” Never” to 5= “Daily or Almost Daily.” A person with higher scores would be considered a problem drinker for this study. The lowest score is a nine because zero was not an option for this study. The categories for low risk were modified to 9-16, 17-24 for hazardous or harmful alcohol consumption, and 25-32 for likelihood of alcohol dependence.

Risky Sex Behaviors

Risky sex behaviors were assessed using four questions assessing behaviors engaged in around sex. These included, “How many sexual partners have you had in the past three months?” “How often do you use a condom when having vaginal sex?”, “The last time you had sexual intercourse, did you use a condom?”, and “Was alcohol involved the last time you had sex?”. These were dichotomized and added together to form a composite risky sex behavior variable.

Data Analysis Plan

Research question 1: Does alcohol use, sexting behaviors and attitudes, and where you live during your time at university predict engagement in risky sex?

Hypothesis: Students who have favorable attitudes towards sexting, engage in sexting behaviors, live on campus, and have higher levels of alcohol use will engage in risky sex behaviors compared to those with less favorable sexting attitudes, do not engage in sexting behaviors, drink alcohol less, and do not live on campus.

Research question 1a: Is there a difference between women and men when assessing the relationship between alcohol use, sexting behaviors and attitudes, where you live during your time at university, and engagement in risky sex?

Hypothesis: Gender differences will exist on the measures of having favorable attitudes towards sexting, engaging in sexting behaviors, living on campus, and having higher levels of alcohol use and engaging in risky sex behaviors compared to those with less favorable sexting attitudes; those who do not engage in sexting behaviors, drink alcohol less, and do not live on campus.

The composite risky sex variable was constructed using four questions: “How many sexual partners have you had in the past three months?” “How often do you use a condom when having vaginal sex?”, “The last time you had sexual intercourse, did you use a condom?”, and “Was alcohol involved the last time you had sex?” The number of sexual partners in the past three months was dichotomized using 0-1 for no risky sex and 2-100 for risky. The variable “How often do you use a condom when having vaginal sex” was recoded to a binary variable for those who always use condoms as zero risk and those who reported using condoms: never,” “sometimes,” and “Often” as risk as this is inconsistent condom use. Lastly, “was alcohol

involved the last time you had sexual intercourse" was already dichotomized. These four questions were added together once they were dichotomized to form the risky sex variable. From there, a risky sex categorical variable was constructed where 0 equaled no risk, and 1-4 fell into the risky sex group. Table 4.1 provides the descriptive data for each of the sexual partner groups. This will be the dependent variable in the analysis.

Table 4.1: Frequency Table for Number of Sexual Partners in the Last Three Months

Number of Sexual Partners	Frequency	Percent	Categories
0	27	6.8%	Did not engage in risky sex
1	183	45.8%	Did not engage in risky sex
2	54	13.5%	Engaged in risky sex
3	19	4.8%	Engaged in risky sex
4-100	25	6.3%	Engaged in risky sex
Total	281	70.3%	

To answer research question one, Spearman's Rho correlation will be conducted to understand which measures are significantly correlated. Next, logistic regression will be performed using the significant measures to understand if alcohol use, sexting behaviors and attitudes, and where you live during your time at university can predict engagement in risky sex. The hypothesis is that students who have favorable attitudes towards sexting, engage in sexting behaviors, live on campus, and have higher levels of alcohol use will engage in risky sex behaviors compared to those with less favorable sexting attitudes, do not engage in sexting behaviors, drink alcohol less, and do not live on campus.

The second research question of this study is to understand if there is a difference between women and men when assessing the relationship between alcohol use, sexting behaviors and attitudes, where you live during your time at university, and engagement in risky sex. Using an independent samples t-test, the hypothesis that gender differences will exist on the measures of having favorable attitudes towards sexting, engaging in sexting behaviors, living on campus, and having higher levels of alcohol use and engaging in risky sex behaviors compared to those with less favorable sexting attitudes, those who do not engage in sexting behaviors, drink alcohol less and do not live on campus.

Results

Demographics

There were 400 students included in the analysis, 200 men and 200 women. The mean age was 23 (SD = 2.20), ranging from 19-29. Relative to housing, over half of the participants rent at a hostel while attending university (61.7%), 21.8% live with their parents or relatives, and only 14.8% report living in university housing. When asked about sexual behaviors, 308 (77%)

reported having sex at least once in their lifetime, and most students started having sex around age 18. Students reported having sex with between two (17.3%) and three (18%) partners in their lifetime. Overwhelmingly, students abstain from using alcohol when having sex (95.5%). Over half of the students (66.2%) reported inconsistent condom use, but when asked about using a condom during their last sexual encounter, the majority reported using a condom (67.9%). Most students (76.9%) reported having between one (59.4%) and two (17.5%) partners in the last 3 months. See Table 4.11 for demographic information.

Descriptive Statistics for the Variables and Correlations

Most students reported no risk for alcohol use (84.5%), 11.0% were at moderate risk, and 4.5% reported alcohol use. See Table 4.2 for each of the questions on the AUDIT scale. Less than half of students reported sexting behaviors (42%); however, more than half (53%) did report having favorable attitudes towards sexting. See Tables 4.6 and 4.5 for all descriptive items on the scales. Of the five items on the risky sex scale, most students reported only engaging in one risky sex behavior (40%), 30.3% reported two risk behaviors, 7.5% reported three risk behaviors, and 0.3% reported engaging in four risky sex behaviors. Overall, 38.5% of the students reported engaging in risky sex behaviors.

Table 4.2 Descriptives for the Variables

	Total	**Women**	**Men**	**Range**
Variable	M (*SD*)	M (*SD*)	M (*SD*)	
Alcohol Use	11.84 (4.85)	10.88 (3.35)	12.81 (5.85)	(9-32)
Sexting Behaviors	2.10 (1.47)	1.80 (1.52)	2.24 (1.43)	(0-5)
Sexting Attitudes	26.63 (7.58)	25.74 (7.41)	27.53 (7.66)	(10-50)
Risky sex	1.54 (0.66)	1.49 (0.59)	.82 (0.39)	(0-4)
Age	23.10 (2.20)	22.92 (2.31)	23.27 (2.07)	(19-29)

Note: N=400 (Women n=200, Men n=200)

To examine the relationships between the study variables, Spearman's Rho correlations were conducted. There was a significant positive correlation between alcohol use and sexting attitudes $r(398) = .30$, $p < .001$, and alcohol use and risky sex behaviors $r(398) = .21$, $p < .001$ was found. This means that as students increase their alcohol use, their attitudes toward sexting become more favorable, and their likelihood of engaging in risky sex increases. Sexting behaviors were not significantly correlated with alcohol use or risky sex behaviors. Sexting attitudes was significantly corelated with sexting behaviors $r(398) = .23$, $p = 0.05$ and risky sex behaviors, $r(398) = .146$, $p < 0.001$. This indicates that if a person has favorable attitudes towards sexting, they are more likely to sext and engage in risky sex. See Table 4.3 for the correlations.

Regression Model for All Students

A logistic regression was conducted to test if sexting behaviors, sexting attitudes, living on campus, and alcohol use significantly predicted engaging in risky sex. The final model was not significant, $\chi^2 (4, 396) = 5.51$, p = .239, indicating that the model was not able to determine a difference between those who engaged in risky sex and those who did not based on the predictor of alcohol use, sexting behaviors, and attitudes. The model could only explain between 5.8 and 11.2 percent of the variance and correctly classified 88% of the students. Although the model was not significant, odds ratios can provide insight into the relationship between the predictors and engagement in risky sex. For those who engaged in sexting behaviors, a 22.5% increase in the odds of engaging in risky sexual behavior was found ($OR = 1.225$, $p = .405$), while more favorable attitudes toward sexting were associated with a 2.9% increase in odds ($OR = 1.029$, $p = .539$). Similarly, each additional point on the AUDIT scale increased the odds of risky sexual

behavior by 11.9% (*OR* = 1.119, *p* = .177). Students living on campus had 61% lower odds of engaging in risky sex compared to those who did not live on campus (*OR* = 0.392, *p* = .249), suggesting a possible protective effect. Despite not reaching significance, these associations may reflect meaningful trends worth exploring in future studies with larger sample sizes.

Table 4.3: Correlations for the Predictor Variables

Variable	1	2	3	4	5
1 AUDIT Score	-				
2 Sexting Behaviors	.10	-			
3 Sexting Attitudes	**.30****	**.23***	-		
4 Living on Campus	.003	.17	-.06	-	
5 Risky Sex Behaviors	**.21****	.09	**.15****	-.07	

*** Indicates significance at the p>.05 level**
****Indicates significance at the p>.01 level**

Table 4.4 Unadjusted Logistic Regression Predicting Risky Sexual Behavior

Variable	B	S.E.	Wald	df	Sig.	Odd Ratio (Exp(B))
Alcohol Use	.115	.037	9.68	1	.002	1.12
Sexting Behavior	1.997	.321	38.61	1	<.001	7.36
Sexting Attitude	.046	.016	7.92	1	.005	1.05
Living on Campus	-.409	.311	1.73	1	.189	.66

Table 4.5 Adjusted Logistic Regression Predicting Risky Sexual Behavior

Variable	B	S.E.	Wald	df	Sig.	Odd Ratio (Exp(B))
Alcohol Use	.122	.093	1.71	1	.191	1.13
Sexting Behavior	.166	.277	.36	1	.550	1.18
Sexting Attitudes	.055	.049	1.29	1	.256	1.06
Living on Campus	-.900	.832	1.17	1	.279	.41
Age	.518	.232	5.01	1	.025	1.68
Gender	-.446	.778	.329	1	.566	.64

Gender Differences

The second aim of the study was to assess the gender differences between alcohol use, sexting attitudes, and behaviors, living on campus, and risky sex. A Spearman's Rho correlation was conducted for each of the measures by gender to understand how they correlate. See Table 4.4 for the correlations. There were three significant correlations for women in the study. First, alcohol use and sexting attitudes were positively correlated, indicating that the more a woman drinks alcohol, the more she has favorable attitudes toward sexting ($r(398) = .321$, $p < 0.001$). Second, alcohol use and engaging in risky sex were positively correlated, indicating that the more a woman drinks alcohol, the more likely she is to engage in risky sex behaviors ($r(398) = .185$, $p < 0.001$). Lastly, living on campus and engaging in risky sex were negatively correlated, indicating that living on campus may be a protective factor in engaging in risky sex ($r(398) = -.150$, $p < 0.05$). For men, there were two significant correlations both with sexting attitudes. Risky sex and sexting attitudes were positively correlated, indicating that the more favorable sexting attitudes, the more likely a man is to engage in risky sexual behavior ($r(398) = .168$, $p < 0.005$). Alcohol use and sexting attitudes were also positively correlated, indicating that the more favorable sexting attitudes, the more likely a man is to drink more heavily ($r(398) = .179$, $p < 0.005$).

An independent samples *t*-test was conducted to understand the gender differences among the predictor variables. Engaging in risky sex ($M = 1.45$, $SD = .66$; $t\ (398) = -2.48$, $p = .014$, two-tailed), sexting attitudes ($M = 26.63$, $SD = 7.58$; $t\ (398) = -2.37$, $p = .018$, two-tailed), and alcohol use ($M = 11.84$, $SD = 4.85$; $t\ (398) = -4.04$, $p < .001$, two-tailed) were significantly different for men and women. The mean difference was (mean difference = -1.93, 95% CI = -2.86 to -.99) for alcohol use, for risky sex, the main difference was (mean difference = -.105,

95% *CI* = -.188 to -.022), and the mean difference for sexting attitudes was (mean difference = -1.785, 95% *CI* = -3.27 to -3.03). For both alcohol use (eta squared = .002), risky sex behaviors (eta squared = .002), and sexting attitudes (eta squared = .002), the eta squared was small. Living on campus and sexting behaviors were not significantly different.

Regression Models by Gender

A logistic regression was performed, isolating women and men in the study to understand if any of the variables were able to predict a person's likelihood of engaging in risky sex behaviors. For women, only 30 people were included in the analysis. The unadjusted regression model was not significant χ^2 (4,196) = 7.48, p = .112, indicating that the model could not predict engagement in risky sex. However, the model explained a small to moderate proportion of variance in the outcome (Cox & Snell R^2 = .114; Nagelkerke R^2 = .225) and achieved an overall classification accuracy of 87.1%. Specifically, the model correctly classified 98.2% of cases involving engagement in risky sex but failed to classify any of the non-engagement cases correctly. See Table 4.7 for the unadjusted variables. The adjusted regression model could not correctly identify if a person would engage in risky sex behaviors, χ^2 (5,195) = 10.14, p = .071. Living on campus for women may be a protective factor; their odds of engaging in risky sex were lower than women who did not live on campus (*OR* = 0.11, *p* = .179). Women who reported more alcohol use were twice as likely to engage in risky sex (*OR* = 2.22, *p* = .200). While these trends are interesting, because of the small number of women in the sample, more research would be needed to determine if this association is correct. See Table 4.8 for all of the results of the adjusted regression model.

For men, 62 cases were included in the analysis. The unadjusted regression model for men was not significant χ^2 (4,196) = 3.61, p = .462, indicating that the model could not predict

engagement in risky sex. The model explained a small proportion of the variance in risky sexual behavior (Cox & Snell R^2 = .056; Nagelkerke R^2 = .112) and correctly classified 88.7% of cases, though it failed to identify any cases of non-engagement correctly. See Table 4.9 for the unadjusted variables. The adjusted regression model was also not significant for men, χ^2 (5,195) = 7.48, p = .187, indicating that the model could not correctly identify if a person would engage in risky sex behaviors. The model explained between (Cox & Snell R^2 = .114; Nagelkerke R^2 = .225) of the variance in risky sexual engagement and correctly classified 87.1% of cases. This prediction was highly skewed, with the model correctly identifying 98.2% of those who engaged in risky sex but 0% of those who did not. Age contributed most to the model (*OR* = 1.78, *p* = .085). Sexting behaviors were associated with 29.5% increased odds of engaging in risky sex (*OR* = 1.30, *p* = .216). While these trends are interesting, more research would be needed to determine if this association is correct because of the small number of men in the sample. See Table 4.10 for all of the results of the adjusted regression model.

Table 4.6 Correlations for the Measures by Gender

Measure	Women					Men				
	1	2	3	4	5	1	2	3	4	5
1 AUDIT Score	-					-				
2 Sexting Behaviors	.39	-				.12	-			
3 Sexting Attitudes	**.32****	.33	-			**.18***	.17	-		
4 Living on Campus	-.01	.18	-.07	-		.00	.15	-.06	-	
5 Risky Sex Behaviors	**.19****	-.05	.1	**-.15***	-	.13	.17	**.17***	-.01	-

*** Indicates significance at the p>.05 level**
****Indicates significance at the p>.01 level**

Table 4.7 Unadjusted Logistic Regression Predicting Risky Sexual Behavior for Women

Variable	B	S.E.	Wald	df	Sig.	Odd Ratio (Exp(B))
Alcohol Use	.187	.075	6.24	1	.012	1.205
Sexting Behavior	-.102	.355	.08	1	.774	.903
Sexting Attitude	.029	.022	1.86	1	.173	1.030
Living on Campus	-.930	.451	4.26	1	.039	.394

Table 4.8 Adjusted Logistic Regression Predicting Risky Sexual Behavior for Women

Variable	B	S.E.	Wald	df	Sig.	Odd Ratio (Exp(B))
Alcohol Use	.797	.093	1.71	1	.191	1.13
Sexting Behavior	-.225	.277	.36	1	.550	1.18
Sexting Attitudes	.036	.049	1.29	1	.256	1.06
Living on Campus	-2.22	.832	1.17	1	.279	.41
Age	.733	.232	5.01	1	.025	1.68

Table 4.9 Unadjusted Logistic Regression Predicting Risky Sexual Behavior for Men

Variable	B	S.E.	Wald	df	Sig.	Odd Ratio (Exp(B))
Alcohol Use	.074	.041	3.164	1	.075	1.076
Sexting Behavior	.404	.312	1.674	1	.196	1.498
Sexting Attitude	.059	.025	5.458	1	.019	1.061
Living on Campus	-.075	.467	.026	1	.872	.928

Table 4.10 Adjusted Logistic Regression Predicting Risky Sexual Behavior for Men

Variable	B	S.E.	Wald	df	Sig.	Odd Ratio (Exp(B))
Alcohol Use	.055	.091	.360	1	.549	1.056
Sexting Behavior	.258	.348	.551	1	.458	1.295
Sexting Attitudes	.090	.073	1.529	1	.216	1.094
Living on Campus	-.022	1.228	.000	1	.986	.978
Age	.574	.334	2.960	1	.076	.000

Discussion

Summary

A total of 400 undergraduate students from a large university in Kampala, Uganda, participated in this study. There were 200 men and 200 women; most were 23 years old, and 14.8% lived on campus. Students reported being sexually active (77%), and the age of debut was around 18 years old. Most students had one to two partners in the last three months, and 95% reported not drinking alcohol before having sex. Over half (66.2%) reported inconsistent condom use. Descriptive statistics revealed low engagement in sexting behaviors ($M = 2.10$, $SD = 1.47$) and generally positive attitudes towards sexting ($M = 26.63$, $SD = 7.58$). The average alcohol use score was 11.84 (SD = 4.85), which was below the clinical threshold for alcohol use according to the AUDIT scale. A Spearman's Rho correlation found that alcohol use was significantly correlated with sexting attitudes ($r = .30$, $p < .001$) and risky sex ($r = .21$, $p < .001$). Sexting attitudes were also significantly associated with both sexting behaviors and risky sex. Sexting behaviors, however, were not significantly correlated with alcohol use or risky sex. This study was conducted to understand the relationship between sexting attitudes and behaviors, living on campus, alcohol use, and engaging in risky sex, and if there are differences among the genders. This is the first assessment of these relationships with students attending a university in Uganda.

Key Findings

The hypothesis is that students who have favorable attitudes towards sexting, engage in sexting behaviors, live on campus, and have higher levels of alcohol use will engage in risky sex behaviors compared to those with less favorable sexting attitudes, do not engage in sexting

behaviors, drink alcohol less, and do not live on campus was not completely supported. Overall, most students are not engaging in sexting behaviors, but students who do sext are using alcohol more and engaging in riskier sex. The prevalence of sexting is lower than university students in Kenya and Nigeria (Ayinmoro et al., 2020; Mukonyo, 2020). Alcohol use was correlated with sexting attitudes and, sexting behaviors and engaging in risky sex behaviors. This finding is not unique globally; the correlation between sexting and alcohol use has been established (Benotsch et al., 2013; Hudson et al., 2014; Makgale & Plattner, 2017), as has sexting and engaging in risky sex behaviors (Gordon-Messer et al., 2013; Ingram et al., 2019; Makgale & Plattner, 2017). However, this is the first time sexting, engaging in risky sex behaviors, and alcohol use has been linked to university students in Uganda. Using the measures as predictors, sexting attitudes and behaviors, living on campus, and alcohol use did not predict a person's engagement in risky sex.

The study's second aim, which assessed gender differences, was partially confirmed. Gender differences were found for engaging in risky sex, attitudes towards sexting, and alcohol use; however, due to the small number of cases in each model, more research would be needed with larger sample sizes to more accurately predict engagement in risky sex. One of the observed trends was that women who drank alcohol more were more likely to engage in risky sex behaviors and had favorable attitudes towards sexting than men. Although there were very few cases in this sample, this finding is important because sexting and alcohol use have been shown to put women at great risk of sexual violence victimization (Dir et al., 2018). One of the more interesting findings was that women who live on campus were significantly less likely to engage in risky sex behaviors. This has been reported among university students in the US but has not been assessed in Uganda (DiBello et al., 2018; Mair et al., 2016). For men, sexting attitudes, engaging in risky sex, and drinking more alcohol were significantly correlated. Having

favorable attitudes towards sexting, engaging in risky sex behaviors, and drinking alcohol have been found to lead to higher rates of STIs and having more sexual partners (Dir et al., 2018).

Limitations

The limitations of this study included the fact that a substantial proportion of participants (69–85%) were excluded from the regression analyses due to missing data, reducing statistical power, and limiting generalizability. The regression models showed poor ability to classify non-engagement in risky sex, especially for women, and the limited number of female cases in the regression (n = 30) restricts the interpretation of gender-based findings. Another limitation is that the cross-sectional design and being a convenience sample from a university in Kampala, Uganda, does not allow for causal interpretations. The sample in this study is not representative of all of Uganda because most of the literature focuses on resources for poor or rural populations, not university students. There is a large economic disparity between those attending university in Kampala and those not attending university. This sample is important as comparisons can be made with other universities globally. The distinction between the data in this study population and non-university students in Uganda is quite stark. Other limitations in this study include inconsistent data. While being told that you have an STI was an item in the survey, only seven participants had been given that information from a doctor or nurse, but all seven reported never having sex. Knowing that having an STI is important when assessing risky sex behaviors, this data was not correct on that variable.

Implications and Future Research Recommendations

Despite the lack of statistically significant regression models, several findings have practical implications. The consistent relationships between alcohol use, sexting attitudes, and risky sex suggest that these factors are interrelated and may influence each other. Prevention

efforts on campus may benefit from targeting alcohol use and attitudes toward sexting as indirect pathways to reducing risky sex. The trend showing that living on campus is protective, particularly for women, could support institutional efforts to expand access to campus housing. Additionally, gender-specific differences highlight the importance of separately tailoring interventions to male and female students.

When developing interventions that address sexual violence, an element of technology-facilitated sexual violence should be included in the development. Future research should look into protective factors for engaging in risky sex, specifically living on campus, as a protective factor for engaging in risky sex, especially for women. Studies have revealed that sexting and sexual violence affects women at a higher rate than men (Dir et al., 2018; Krieger, 2017; Salerno-Ferraro et al., 2022). Because women are disproportionately affected by TFSV, qualitative studies should attempt to understand the behavior change that occurs when sexting and drinking can lead to risky sex. The impact of sexting on mental health, including anxiety and depression, requires further study. The research on this is very new and should be explored among the students at Makerere, as their depression rates are very high. While this topic seems to be in its infancy, this could provide some insight into motivational factors for a person's decision to sext and sexual violence. Studies have assessed anxiety and depression in Nigerian university students and found that those who sext report higher levels of depression symptoms (Yisa & Orji, 2024).

Additionally, larger sample sizes would allow for more stable regression estimates, especially in gender-stratified models. Longitudinal studies are needed to establish causal relationships between sexting, alcohol use, and risky sex. Additional variables such as peer norms, sexual violence experiences, and mental health could improve model prediction.

The findings of this study provide insight into the attitudes and behavioral factors associated with TFSV. Still, it should be noted that the small sample sizes in the study can only suggest trends and do not allow for generalization. Sexting has been shown to explain the relationship between alcohol use and sexual violence (Benotsch et al., 2013; Hudson et al., 2014; Makgale & Plattner, 2017). Further exploration of this is needed as we increasingly move into a more digital world, and the prevalence and outcomes of TFSV are lacking in the African population.

Conclusion

Sexting is not going away, so we need to understand the risks and the protective factors that can make this a safe activity. With technology growing at a lightning pace, the need for interventions to address technology-facilitated sexual violence should be a priority.

TABLE 4.11 DEMOGRAPHICS

Demographic Characteristics	Women, n (%)	Men, n (%)	N, (%)	Mean	*S.D.*	Range
Gender	200 (50.0)	200 % (50.0)	400 (100)			
Place where you live during university						
University Halls	23 (11.5)	36 (18.0)	59 (14.8)			
Rent at a hostel	119 (59.5)	111 (55.5)	230 (57.5)			
Parent's or relative's home	49 (24.5)	52 (26.0)	101 (25.3)			
Boyfriend's or Girlfriend's home	5 (2.5)	0	5 (1.3)			
Family friend's home	4 (2.0)	1 (0.5)	5 (1.3)			
Academic year						
2nd Year	75 (37.5)	75 (37.5)	150 (37.5)			
3rd Year	75 (37.5)	75 (37.5)	150 (37.5)			
4th Year	25 (12.5)	25 (12.5)	50 (12.5)			
5th Year or Above	25 (12.5)	25 (12.5)	50 (12.5)			
Devices used when accessing the internet						
Desktop	0	1 (0.5)	1 (0.3)			
Laptop	8 (4.0)	15 (7.5)	23 (5.8)			
Tablet	4 (2.0)	2 (1.0)	6 (1.5)			
Smartphone	144 (72.0)	131 (65.5)	275 (68.8)			
Analog Phone	7 (3.5)	18 (9.0)	25 (6.3)			
Multiple Devices	37 (18.5)	33 (16.5)	70 (17.5)			
Ever had sex						
Yes	142 (71.0)	166 (83.0)	308 (77.0)			
No	58 (29.0)	34 (17.0)	92 (23.0)			
Lifetime number of sex partners						
I have never had sexual intercourse	58 (29.0)	34 (17.0)	92 (23.0)			
1 person	36 (18.0)	22 (11.0)	58 (14.5)			
2 people	39 (19.5)	30 (15.0)	69 (17.3)			

3 people	48 (24.0)	24 (12.0)	72 (18.0)			
4 people	9 (4.5)	30 (15.0)	39 (9.8)			
5 people	3 (1.5)	14 (7.0)	17 (4.3)			
6 or more people	7 (3.5)	46 (23.0)	53 (13.3)			
Sex in the past 30 days						
Never had sexual intercourse	58 (29.0)	34 (17.0)	92 (23.0)			
Yes	97 (48.5)	99 (49.5)	196 (49.0)			
No	45 (22.5)	67 (33.5)	112 (28.0)			
Alcohol involved in the last sexual encounter						
Never had sexual intercourse	58 (29.0)	34 (17.0)	92 (23.0)			
Yes	10 (5.0)	8 (4.0)	18 (4.5)			
No	132 (66.0)	158 (79.0)	290 (72.5)			
Alcohol involved sex in the past 30 days						
Never had sexual intercourse	58 (29.0)	34 (17.0)	92 (23.0)			
Yes	6 (3.0)	7 (3.5)	13 (3.3)			
No	136 (68.0)	159 (79.5)	295 (73.8)			
Lifetime condom use during vaginal sex						
Always	37 (25.5)	67 (33.5)	104 (37.5)			
Often	12 (6.0)	29 (14.5)	41 (26.3)			
Sometimes	51 (18.5)	54 (27.0)	105 (10.3)			
Never	100 (50.0)	50 (25.0)	150 (26.0)			
Condom use at last sex						
Yes	88 (38.0)	121 (72.9)	209 (52.3)			
No	54 (62.0)	45 (27.1)	99 (24.8)			
Age				23.1	2.20	10 (19-29)
Women				22.9	2.31	8 (19-27)
Men				23.3	2.07	9 (20-29)
Age of sexual debut				18.1	2.31	13 (11-24)
Women				18.5	2.35	10 (14-24)
Men				17.7	2.57	13 (11-24)

Number of sexual partners in the past 3 months	1.71	2.18	22 (0-22)
Women	1.46	2.35	22 (0-22)
Men	1.92	2.01	14 (0-14)

TABLE 4.12: SEXTING ATTITUDES AND BEHAVIORS

Sexting Attitudes and Behaviors	N	%	Women	Men
Would you say that you are currently looking for a romantic partner?				
Yes	128	32.0	52 (26.0)	76 (38.0)
No	272	68.0	148 (74.0)	124 (62.0)
Have you ever used an online dating site or app?				
Yes	92	77.0	30 (15.0)	62 (31.0)
No	308	23.0	170 (85.0)	138 (69.0)
Have you ever had sex with a partner that you met on a dating app?				
Yes	24	6.0	6 (3.0)	18 (9.0)
No	68	17.0	24 (12.0)	44 (22.0)
Never used any dating apps	308	77.0	170 (85.0)	138 (69.0)
Have you sent a sexually suggestive nude or nearly nude photo or video of yourself to someone else using your cell phone				
Yes	61	15.3	27 (13.5)	34 (17.0)
No	339	84.8	173 (86.5)	166 (83.0)
Received a sexually suggestive nude or nearly nude photo or video of someone else you know on your cell phone				
Yes	191	47.8	12 (51.0)	89 (44.5)
No	209	52.3	98 (51.0)	111 (55.5)
Forwarded a sexually suggestive nude or nearly nude photo or video of someone else you know using your cell phone				
Yes	111	27.8	62 (31.0)	49 (24.5)
No	289	72.3	138 (69.0)	151 (75.5)
Sexting is just a part of flirting				
Absolutely True	38	9.5	21 (10.5)	17 (8.5)
Mostly True	43	10.8	21 (10.5)	22 (11.0)
Somewhat True	66	16.5	28 (14.0)	38 (19.0)

Rarely True	84	21.0	34 (17.0)	50 (25.0)
Not at all True	169	42.3	96 (48.0)	73 (36.5)
There is no harm in sexting				
Absolutely True	35	8.8	16 (8.0)	19 (9.5)
Mostly True	33	8.3	14 (7.0)	19 (9.5)
Somewhat True	57	14.2	23 (11.5)	34 (17.0)
Rarely True	68	17.0	32 (16.0)	36 (18.0)
Not at all True	207	51.7	115 (57.5)	92 (46.0)
Sexting is fun				
Absolutely True	33	8.3	12 (6.0)	21 (10.5)
Mostly True	50	12.5	19 (9.5)	31 (15.5
Somewhat True	66	16.5	27 (13.5)	39 (19.5)
Rarely True	73	18.3	35 (17.5)	38 (19.0)
Not at all True	178	44.5	107 (53.5)	71 (35.5)
Sexting is a part of being in a relationship				
Absolutely True	41	10.3	17 (8.5)	24 (12.0)
Mostly True	56	14.0	26 (13.0)	30 (15.0)
Somewhat True	46	11.5	18 (9.0)	28 (14.0)
Rarely True	90	22.5	37 (18.5)	53 (26.5)
Not at all True	167	41.8	102 (51.0)	65 (32.5)
Sexting is no big deal				
Absolutely True	56	14.0	25 (12.5)	31 (15.5)
Mostly True	52	13.0	23 (11.5)	29 (14.5)
Somewhat True	56	14.0	17 (8.5)	39 (19.5)
Rarely True	86	21.5	41 (20.5)	45 (22.5)
Not at all True	150	37.5	94 (47.0)	56 (28.0)
I think that sexting may cause me problems in the future				
Absolutely True	88	22.0	49 (24.5)	39 (1905)
Mostly True	72	18.0	35 (17.5)	37 (18.5)
Somewhat True	58	14.5	21 (10.5)	37 (18.5)
Rarely True	63	15.8	29 (14.5)	34 (170)
Not at all True	119	29.8	66 (33.0)	53 (26.5)
Sending sexually suggestive texts is risky				

Absolutely True	146	36.5	89 (44.5)	57 (28.5)
Mostly True	89	22.3	45 (22.5)	44 (22.0)
Somewhat True	52	13.0	16 (8.0)	36 (18.0)
Rarely True	57	14.2	24 (12.0)	33 (16.5)
Not at all True	56	14.0	26 (13.0)	30 (15.0)
Sending sexually suggestive pictures leaves me vulnerable				
Absolutely True	97	24.3	53 (26.5)	44 (22.0)
Mostly True	57	14.2	19 (9.5)	38 (19.0)
Somewhat True	52	13.0	18 (9.0)	34 (17.0)
Rarely True	70	17.5	34 (17.0)	36 (18.0)
Not at all True	124	31.0	76 (38.0)	48 (24.0)
You have to be careful about sexting				
Absolutely True	216	54.0	118 (59.0)	98 (49.0)
Mostly True	94	23.5	48 (24.0)	46 (23.0)
Somewhat True	38	9.5	13 (6.5)	25 (12.5)
Rarely True	35	8.8	12 (6.0)	23 (11.5)
Not at all True	17	4.3	9 (4.5)	8 (4.0)
I share the sexts I receive with my friends				
Absolutely True	23	5.8	12 (6.0)	11 (5.5)
Mostly True	49	12.3	32 (16.0)	17 (8.5)
Somewhat True	30	7.5	11 (5.5)	19 (9.5)
Rarely True	50	12.5	21(10.5)	29 (14.5)
Not at all True	248	62.0	124 (62.0)	127 (62.0)
I share the sexts I send with my friends				
Absolutely True	12	3.0	7 (3.5)	5 (2.5)
Mostly True	44	11.0	32 (16.0)	12 (6.0)
Somewhat True	30	7.5	6 (3.0)	24 (23.0)
Rarely True	47	11.8	21 (10.5)	26 (13.0)
Not at all True	267	66.8	134 (67.0)	133 (66.5)
Sexting improves my relationship or potential relationship				
Absolutely True	28	7.0	9 (4.5)	19 (9.5)
Mostly True	40	10.0	18 (9.0)	22 (11.0)
Somewhat True	51	12.8	16 (8.0)	35 (17.5)

Rarely True	73	18.3	36 (18.0)	37 (18.5)
Not at all True	208	52.0	121 (60.5)	87 (43.5)

CHAPTER 5

CONCLUSIONS

Introduction

Sexual violence is a prevalent issue at universities around the world, particularly impacting women. The global prevalence of sexual violence is estimated at 17.5% for women and 7.8% for men (Steele et al., 2023). According to a meta-analysis spanning 22 countries, the highest rates of sexual violence are found in Africa (16.3%), followed by South America (13.9%) and Asia (4.2%) (Pengpid & Peltzer, 2016). A subsequent analysis of male and female students in higher education reveals that women in Africa report the highest prevalence of sexual violence at 25.9%, with U.S. female students reporting 17.9% and European and Western Pacific students at 15.6% (Steele et al., 2023). Specific consequences of sexual violence for university women in South Africa include unprotected sex during rape (27.3%), the inability to sit exams (46.8%), unintended pregnancies, and subsequent abortions (14.2%). Notably, 79.2% expressed fear of being raped while walking alone at night (Mutinta, 2022).

The World Health Organization (WHO) defines sexual violence as any act or attempt to obtain a sexual act through coercion. This broad definition includes physical acts like rape and unwanted sexual contact, as well as non-contact acts like intimate partner violence and sexual assault. Sexual violence not only encompasses direct physical harm but also includes coercive acts such as sexting, which is increasingly recognized as a form of technology-facilitated sexual violence (TFSV). TFSV refers to any sexual violence that occurs via technological means, such

as sexting, which involves sending sexually explicit messages or images via cell phones. A meta-analysis reveals that between 7% and 17% of participants have been victims of sexting-related sexual violence (Patel & Roesch, 2020). Furthermore, studies show that women are disproportionately affected by TFSV, with higher rates of harassment and non-consensual sharing of intimate content (Mori et al., 2020). The emotional consequences of TFSV are like those of physical sexual assault, with victims often experiencing anxiety, depression, and PTSD (Powell, 2020). This dissertation aimed to use theories to guide the salient factors of sexual violence intervention that were important for the population of students at Makerere University. This was accomplished in paper one by assessing the constructs of mental health, alcohol use, and rape myth acceptance and intention to intervene in the event of a potential sexual assault. Paper two focused on the relationship of technology-facilitated sexual violence constructs using the social cognitive theory. The relationship of attitudes towards sexting, engagement in sexting behaviors, living on campus, alcohol use, and engagement in risky sexual behaviors was explored.

Chapter 3 Summary

The focus of the study in chapter three was to understand the students at Makerere's attitudes and behaviors toward campus-related sexual violence prevention. The specific factors assessed were factors associated with mental health, alcohol use, and rape myth acceptance and intention to intervene in the event of a potential sexual assault. The literature identified these constructs as areas that would be most impactful for intervention development. The Theory of Planned Behavior was used to guide the research question of explaining who will intervene in the event of a sexual assault. There were 400 students, 200 men and 200 women, and the average age was 23. Most students met the criteria for major depression. Specifically, 70.2% showed

signs of depression, while 29.8% did not. Eighty-four percent reported that they did not use alcohol to a level of alcohol use. Students accept a degree of rape myths. Students had favorable attitudes toward intervening in cases of sexual violence. The correlation between bystander intention and both rape myth acceptance and depression symptoms was negative. Suggesting that as students' intention to intervene in cases of sexual violence increased, their endorsement of rape myths ($r(398) = -0.176$, $p < 0.001$) and the severity of their depressive symptoms ($r(398) = -0.218$, $p < 0.001$) decreased. Alcohol use did not show significant correlations with bystander intention. A positive correlation was found between alcohol use and rape myth acceptance ($r(398) = 0.101$, $p < 0.001$), suggesting that individuals who reported higher levels of alcohol use were more likely to accept rape myths. A multiple regression analysis was conducted to determine if depression and rape myth acceptance predicted students' intention to intervene in cases of sexual violence. The results were significant, $F(2,397) = 13.97$, $p < 0.001$, with an R^2 of 0.066, indicating that these variables explained about 6.6% of the variance in intervention intentions. Depression symptoms were the strongest predictor of intervention intention ($\beta = -0.190$, $p < 0.001$), followed by rape myth acceptance ($\beta = -0.143$, $p = 0.004$). The model showed that students' depressive symptoms decreased, and their acceptance of rape myths also decreased while their likelihood of intending to intervene in cases of sexual violence increased. Gender differences were found in the measures. Men reported slightly higher levels of depressive symptoms ($M = 19.88$) than women ($M = 18.01$) and had higher levels of alcohol use ($M = 12.81$) compared to women ($M = 10.88$). They also had higher average scores of rape myth acceptance ($M = 36.01$) compared to women ($M = 32.66$), indicating that men were more likely to endorse rape myths. For women, there was a slight difference in bystander intention between men ($M = 9.45$) and women ($M = 9.83$), with women slightly more likely to have favorable

intentions to intervene. A moderation analysis was conducted to explore the role of gender in the relationship between depression, rape myth acceptance, alcohol use, and intention to intervene. Overall, rape myth acceptance and depression symptoms were significant predictors of intervention intention, while alcohol use and gender interactions did not add substantial explanatory value.

Chapter 4 Summary

The focus of chapter three was to explore the associations of sexting attitudes and behaviors, engaging in risky sex, living on campus, and alcohol use. A total of 400 university students, consisting of 200 men and 200 women, with an average age of 23 years, participated in the study. Most participants (61.7%) lived in hostels while attending university, 21.8% lived with parents or relatives, and 14.8% resided in university housing. The study aimed to explore the relationships between sexting behaviors and attitudes, alcohol use, risky sexual behaviors, and the influence of living on campus. When exploring sexual risk behaviors, 77% of students reported having had sex at least once, with most debuting around age 18. Participants had between two and three sexual partners in their lifetime. The majority (95.5%) abstained from using alcohol during sexual encounters. Despite this, 66.2% of students reported inconsistent condom use, although 67.9% used condoms during their most recent sexual encounter. In the past three months, most participants had one (59.4%) sexual partner. Most students reported no risk for alcohol use (84.5%), 11.0% were at moderate risk, and 4.5% reported alcohol use. Less than half of students reported sexting behaviors (42%); however, more than half (53% did report having favorable attitudes towards sexting. Overall, 38.5% of the students reported engaging in risky sex behaviors. Correlation analysis revealed that sexting behaviors, attitudes toward sexting, alcohol use, and risky sex behaviors were interrelated. Significant correlations were

found between alcohol use and sexting attitudes ($r = .240$, $p < .001$), as well as between alcohol use and risky sex behaviors ($r = .164$, $p < .001$). This indicates that higher alcohol consumption is associated with more favorable attitudes toward sexting and an increased likelihood of engaging in risky sexual behaviors. However, sexting behaviors were not significantly correlated with alcohol use or risky sex behaviors. Further, sexting attitudes were positively associated with both sexting behaviors ($r = .211$, $p < .001$) and risky sex behaviors ($r = .142$, $p < .001$), suggesting that students with more positive attitudes towards sexting were more likely to engage in sexting and risky sexual practices. A logistic regression analysis aimed to predict risky sex behaviors based on sexting behaviors, attitudes, alcohol use, and campus living was not significant ($\chi^2 = 4.26$, $p = 0.234$). The model explained only 4.5–8.7% of the variance, suggesting that these factors alone did not predict risky sexual behavior in this population. The study also examined gender differences in the relationships between alcohol use, sexting behaviors, attitudes, campus living, and risky sex. For women, significant correlations were found between alcohol use and favorable sexting attitudes ($r = .321$, $p < .001$), as well as between alcohol use and risky sex behaviors ($r = .185$, $p < .001$). Additionally, living on campus was negatively correlated with risky sex behaviors for women ($r = -.150$, $p < .05$), suggesting that living on campus may serve as a protective factor. For men, the correlations between alcohol use, sexting attitudes, and risky sex behaviors were also significant but weaker than those for women.

Key Findings

Sexual violence prevention efforts for students at Makerere were uncovered. A student's favorable attitudes towards intention to intervene in the event of a potential sexually violent act are predicted by having fewer symptoms of depression and not accepting rape myths. Addressing

mental health challenges, specifically depression, would be important as this was a significant predictor of a person's intention to intervene. Additionally, addressing rape myth acceptance and alcohol use, especially for men, would be an area that would have an impact on sexual violence prevention interventions.

Although the majority of students did not engage in sexting behaviors, those who did were more at risk of sexual violence. The key findings for women were that among those who had favorable attitudes towards sexting, they had increased alcohol use and engaged in risky sex behaviors, but living on campus was a protective factor. For men, drinking more alcohol, having more favorable sexting attitudes, and engaging in more risky sex behaviors were correlated. This indicates that interventions aimed at addressing alcohol use and sexting for women and men would have an impact on the risk of engaging in risky sex behaviors that can lead to sexual violence. Additionally, knowing that women living on campus are protective against risky sex can help to identify who should be recruited for interventions.

Limitations

While this study contributes to the literature, there are limitations. Due to the sight variances found in the regression models and the low number of cases, the findings are not robust enough for generalizability. First-year, non-main campus, and post-secondary students were excluded from participating, limiting its representation of all Makerere University students. The survey had incomplete measures, such as missing questions in the AUDIT, combined questions in the bystander scale, and missing questions in the rape myth acceptance scale. Only the depression scale was complete. Additionally, the study did not assess whether participants had been survivors of sexual violence, which limits understanding of their motivations to intervene in sexual violence situations. The sample was a convenience sample from a university

in Kampala, which may not be representative of all of Uganda, particularly given the economic disparities between university students and non-students. Data inconsistencies were also present, such as contradictory STI data from participants who reported never having sex but indicated they had been informed by a healthcare provider that they had an STI. These limitations affect the study's generalizability and the accuracy of certain variables.

Lastly, the large amount of missing data in the regression analyses, with up to 85% of participants excluded from some models reduced statistical power and restricted interpretation, especially among women (n = 30 in some regressions). Additionally, inconsistencies in self-reported sexual risk behaviors highlight issues with data reliability. Lastly, the economic disparity between Makerere University students and non-university youth in Uganda challenges the generalizability of these findings to more vulnerable populations, a contrast emphasized in prior work by Swahn et al. (2020; 2022) and Culbreth et al. (2021).

Summary and Future Directions

The findings of this study highlight areas for sexual violence interventions at Makerere University, particularly about mental health and depression among students. Depression rates are alarmingly high, especially when compared to existing literature, and while mental health services are available, more support is needed. Despite claims of sexual violence prevention programs, the specific content of these interventions is unclear, and issues like rape myth acceptance remain prevalent among both men and women. Additionally, the connection between technology-facilitated sexual violence, alcohol use, and sexting, highlighting how sexting can act as a bridge between alcohol use and sexual violence, and these constructs would be assessed in intervention development. Women are disproportionately affected by both sexting and sexual

violence compared to men. As interventions to combat sexual violence are developed, it is important to include aspects related to technology-facilitated elements of sexual violence.

Future interventions designed for women should incorporate alcohol use deterrents, as the few women in this study that did drink were more likely to accept rape myths than those who did not. Future research should focus on identifying protective factors, such as campus living, that may reduce the likelihood of risky sexual behavior, particularly for women. There is also a call for more culturally appropriate depression screening tools tailored to African university students. Research has mainly used the SRQ-20, and further studies could explore using different tools, like the CES-D-20. Future research should focus on the prevalence of sexual violence survivors at African universities, as understanding this can better inform behavioral intentions to intervene. This area of research is underexplored, and the gap in understanding sexual violence at the university level compared to the broader population is significant. Investigating these gaps will contribute valuable knowledge to the field of sexual violence prevention and intervention. The impact of sexting on mental health, as this has been linked to higher levels of anxiety and depression in university students, warrants further investigation. Lastly, there is a significant gap in understanding the prevalence and impact of technology-facilitated sexual violence in African populations, especially as digital interactions continue to increase globally. Sexting is a behavior that is unlikely to disappear, and understanding the risks and protective factors associated with it is crucial. While the study did not find strong predictors of risky sex behaviors based on sexting, alcohol use, and campus living, it did highlight the interconnections between alcohol use, sexting attitudes, and risky sexual behaviors, particularly among women. As technology continues to evolve, it is important to address both the positive and negative aspects of sexting to protect individuals from potential harm, without stigmatizing the behavior.

Conclusion

This dissertation examined two areas related to sexual violence intervention: factors that affect the attitudes towards a person's intention to intervene and the relationship of factors related to technology-facilitated sexual violence. Specifically, the impact of depression, rape myth acceptance, and alcohol use on students' attitudes toward intervening in potential sexual violence situations and attitudes and behaviors of sexting, alcohol use, living on campus, and risky sexual behaviors. While students generally showed favorable intentions to intervene, their acceptance of rape myths may influence whether they ultimately act. While most students did not engage in sexting, those who did tend to drink more and engage in riskier sexual behaviors. This finding can help to identify the key areas for intervention in the technology-facilitated sexual violence area. Understanding these relationships is critical for tailoring interventions that are relevant to this population, providing insight into the high prevalence of sexual violence in the communities they may work in. While the statistical power may not have been as robust, these findings can be used as a guide for future studies to assess if using the components of this dissertation would be impactful.

As future leaders in Uganda, these students could play a key role in shaping policies on sexual violence. The study also highlights that sexting is a persistent behavior that carries risks, especially for those who engage in it, making it essential to identify protective factors. With the rapid growth of technology, interventions addressing technology-facilitated sexual violence must be prioritized. It's important to develop strategies that address the negative aspects of sexting while not stigmatizing it and recognizing its potential positives.

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