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THE INFLUENCE OF HETERONORMATIVITY ON SEXUAL HEALTH DISPARITIES IN
QUEER AND HETEROSEXUAL WOMEN

A DISSERTATION

Submitted to the Faculty of
Montclair State University in partial fulfillment
of the requirements
for the Doctor of Philosophy

by

JACQUELINE BIBLE

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May 2020

Dissertation Chair: Dr. Brad van Eeden-Moorefield

MONTCLAIR STATE UNIVERSITY

THE GRADUATE SCHOOL

DISSERTATION APPROVAL

We hereby approve the Dissertation

THE INFLUENCE OF HETERONORMATIVITY ON

SEXUAL HEALTH DISPARITIES IN

QUEER AND HETEROSEXUAL WOMEN

of

Jacqueline Bible

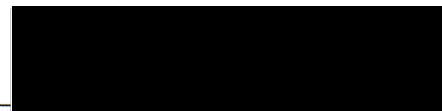
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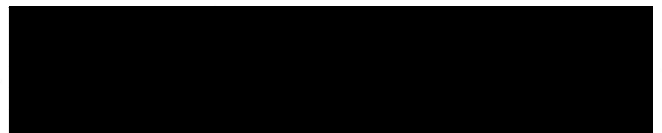
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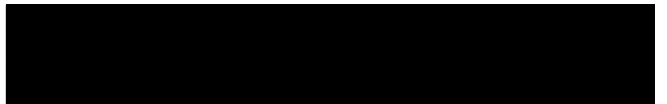
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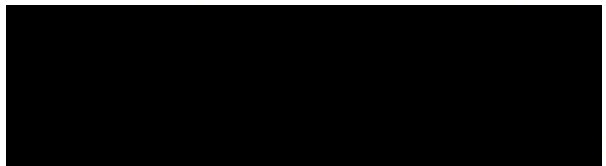
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ABSTRACT

THE INFLUENCE OF HETERONORMATIVITY ON SEXUAL HEALTH DISPARITIES IN QUEER AND HETEROSEXUAL WOMEN

by Jacqueline Bible

This research focuses on identifying how heteronormativity moderates links between individual and interpersonal processes (i.e., communication self-efficacy, safe sex behaviors) that influence comprehensive sexual health (CSH) disparities among queer and heterosexual cisgender women. The World Health Organization (2019) defines CSH as well-being across physical, emotional, and social domains; yet, the extant literature often fails to consider determinants of, or disparities in, CSH. The first aim was to validate a measure of CSH and test its validity across online survey samples of queer and heterosexual women ($N = 246$) using a multi-group confirmatory factor analysis in MPLUS. Data fit the model ($RMSEA = 0.06$, $CFI = 0.93$) and some moderation was present. The second and third aims examined how heteronormativity moderates the links between communication self-efficacy, safe sex behaviors, and CSH in queer and heterosexual women, respectively. Among queer women, results suggested strong model fit ($n = 110$; $TLI = .96$, $CFI = .97$, $RMSEA = .04$) and moderated, partial mediation was present. This also held true for heterosexual women ($n = 188$, $TLI = .96$, $CFI = .98$, $RMSEA = .04$). Taken together, the latent construct of CSH can be measured parsimoniously, and it appears that the individual process of communication self-efficacy has a stronger direct effect on CSH compared to interpersonal processes. Heteronormativity moderated this relationship, particularly for women with high internalized heteronormativity. Thus, results provide a level of evidence explaining some impact of heteronormativity on CSH disparities among diverse women.

Keywords: heteronormativity, sexual health, women

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DEDICATION

To my family. Thank you for always pushing me to follow my dreams. None of this would be possible without you.

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CHAPTER 1: INTRODUCTION

The World Health Organization (WHO; 2019) defines comprehensive sexual health as well-being across physical, mental, and social domains. With that, comprehensive sexual health “requires a positive and respectful approach to sexuality and sexual relationships, as well as the possibility of having pleasurable and safe sexual experiences, free of coercion, discrimination and violence” (WHO, 2019, p.1). However, to date, much of the sexual health research has focused narrowly on the absence of disease and unintended pregnancy (i.e., physical domains) rather than all of the other comprehensive aspects described above (WHO, 2019; Zielinski, 2013). Accordingly, most of the sexual health information we know is about disease and unintended pregnancy (Zielinski, 2013). For example, although global data is limited, when compared to other industrialized countries (i.e., France, Germany, Netherlands) the United States is one of the least sexually healthy (Advocates for Youth, n.d.). In 2009, the United States had HIV/AIDS diagnoses that were six times higher than those in Germany, three times higher than those in the Netherlands, and one and a half times higher than those in France (Advocates for Youth, n.d.). Further, best estimates suggest that approximately 50% of all sexually active people in the United States will acquire some type of sexually transmitted infection (STI) by the age of 25, which is significantly higher than other industrialized counties (ASHA, 2019). For example, estimates suggest that in the United States there were more than 1.7 million Chlamydia diagnoses in 2017 (CDC, 2018). This is approximately four times higher than the number of Chlamydia diagnoses in the EU/EEA in 2016 (ECDC, 2016). Additionally, the United States has more unintended pregnancies than any other industrialized country (Advocates for Youth, n.d.; Guttmacher Institute, 2019). For example, in 2006 the US had more than four times the number of teenage pregnancies than the Netherlands (Advocates for Youth, n.d.). Taken together, and

compared to other industrialized countries, the United States appears to host poorer levels of physical sexual health, thereby, warranting further examination of this public health concern.

Importantly, not all individuals in the United States are at equal risk to experience negative sexual health outcomes. Specifically, individuals who have at least one minority status (e.g., women, racial or ethnic minorities, LGBTQ+, individuals with low SES) are more likely to experience poorer sexual health outcomes when compared to the majority (CDC, 2017b; ODPHP, 2019). These are known as sexual health disparities (CDC, 2017; ODPHP, 2019). Two of the most vulnerable groups that experience sexual health disparities are queer individuals (LGBTQ+; National LGBT Health Education Center, 2016) and women (CDC, 2011). Additionally, queer women (also referred to as women who have sex with other women; WSW; CDC, 2015) are significantly more likely to be diagnosed with Human Papilloma Virus (CDC, 2015) and Herpes Simplex Virus (HSV-2) when compared to women who engage in different gender sexual relationships (CDC, 2015). Finally, approximately 1.1 million cases of chlamydia were diagnosed in women (regardless of their sexual identity) in 2017 (CDC, 2018). Thus, sexual health disparities among these groups are evident.

Because research has examined health disparities as the presence of disease diagnosis (as listed above; Zielinski, 2013), the primary disparities we know about are the presence and absence of disease. By minimizing sexual health to disease diagnoses, the field has overlooked myriad ways that indicate someone's sexual health, foregoing further insight into other potential sexual health disparities (Zielinski, 2013). Although there is not much research on other indicators of sexual health (e.g., sexual pleasure such as orgasm, sexual functioning, feelings of safety, feelings of sexual anxiety or depression), research does broadly suggest that disparities exist across these indicators. For example, there are significant gaps in rates of orgasm between

heterosexual men and women when engaging in penetrative sexual intercourse (Kinsey Institute, 2019). Additionally, heterosexual women are significantly more likely than heterosexual men to experience shame, depression, and guilt about their sexuality after engaging in casual sexual behavior with another person (Allyn, 2000; Garcia, Reiber, Massey, & Merriwether, 2012). Queer women are more likely than their heterosexual counterparts to experience sexual assault, rape, or violence (i.e., 61% of bisexual women, 44% of lesbian women compared to 35% of heterosexual women; Human Rights Campaign, 2019) leading to lower perceptions of safety. Therefore, by attending to these already conceptualized, yet understudied, comprehensive domains of what sexual health is, we may be able to gain more insight into sexual health disparities in vulnerable groups, such as queer individuals and women.

Determinants of Health and Sexual Health Disparities

Another important line of inquiry focuses on identifying the factors and processes involved in the creation and persistence of sexual health disparities. The Determinants of Health Framework (DoH), created by the World Health Organization, examines how policymaking, social factors, health services, individual behaviors, and biology/genetic makeup lead to health disparities (ODPHP, 2019). Importantly, these determinants examine more than just disease because they examine how social factors can contribute to who is healthy and who is not. By taking a DoH perspective toward sexual health (WHO, 2010b), we can examine sexual health disparities beyond medical diagnoses of STIs and unintended pregnancies. For example, a queer person may not have an STI (which traditionally would be perceived as sexually healthy), but may experience cultural discrimination because of their sexual identity (Meyer, 2003). The discrimination they experience may be internalized, leading to poor physical and mental health outcomes (Meyer, 2003). Thus, even though the individual may be physically healthy (i.e. they

do not have any STIs), the experience of cultural discrimination still contributes to disparate health outcomes (WHO, 2019). Accordingly, the DoH framework helps to broaden the analysis of sexual health disparities and provides a deeper examination of the social factors that contribute to these disparities.

A particularly understudied contributor to sexual health disparities is culture. Culture includes the beliefs, values, systems, and practices in which someone develops, that are socially constructed and enforced (Ratcliff, 2017). More specifically, scant research has examined the impact of heteronormativity on comprehensive sexual health disparities. Heteronormativity is a cultural norm which privileges individuals who are heterosexual, monogamous, and only have sex inside the confines of marriage (van Eeden-Moorefield, 2018). This norm started from the Puritan era push for sexual morality which sought to suppress sexual desire outside of marriage and limited sexual interactions to those for the purposes of reproduction only (Easton & Hardy, 2009; D’Emilio & Freedman, 2012). Messages about sexuality included demonizing masturbation, same-gender relationships, and shaming forms of contraception and birth control (D’Emilio & Freedman, 2012).

Importantly, heteronormativity does not appear to have a direct effect on health outcomes, but instead, it exudes an indirect effect on health through its influences on the processes occurring between systems (e.g., practitioner presumptions of heterosexuality; Utamsingh, Richman, Martin, Lattanner, & Chaikind, 2015), between people (e.g., engaging in safe sex behaviors; Baptiste-Roberts, Oranuba, Werts, & Edwards, 2017) and/or internally (e.g., feelings of sexual communication self-efficacy; Meyer, 2003; Quinn-Nilas, et al., 2016). For example, sexuality education often takes a heteronormative perspective and excludes important and affirming information for queer individuals about sexual health, which leaves queer

individuals at higher risk for health disparities (Baptiste-Roberts, et al., 2017). Additionally, cultural heteronormative scripts suggest that women should be sexually ambivalent whereas men should be sexually aggressive, contributing to a gendered power dynamic where women's needs are second to men's in heterosexual sexual encounters (Currier, 2013). Often, these heteronormative structures and scripts create challenges for queer individuals and women to advocate for their sexual health and limits their knowledge of how to engage in processes that may benefit sexual health outcomes (such as using barrier methods in sexual intercourse; Marazzo, Coffey, & Bingham, 2005; Lehmillier, VanderDrift, & Kelly, 2014; Quinn-Nilas et al., 2016).

Statement of Purpose

The first aim of the program of research is to create a more comprehensive understanding of sexual health disparities. Current research has taken a disease-centered approach to sexual health, which only provides a restricted understanding of sexual health disparities (ODPHP, 2019; Zielinski, 2013). Importantly, there is evidence that sexual health disparities span more than just the absence of disease and unintended pregnancy, but these indicators are understudied (e.g., Allyn, 2000; Human Rights Campaign, 2019; Kinsey Institute, 2019; Zielinski, 2013). By employing a comprehensive definition of sexual health and expanding sexual health measurement to more than just disease and unintended pregnancy (i.e., sexual functioning, sexual pleasure, safety, depression, anxiety, and perceptions of sexual health), we may gain more comprehensive insight into health disparities.

The second aim of this program of research is to examine heteronormativity's indirect influence on systematic, interpersonal, and individual sexual health processes that may contribute to disparities. Although some research has examined the role that cultural factors,

such as heteronormativity, have on health (e.g., Baptiste-Roberts, et al., 2017; Meyer, 2003), to our knowledge, no research has examined how heteronormativity acts as a moderating influence on sexual health disparities in vulnerable populations. Due to their particularly vulnerable intersections, we focus specifically on queer women (in this program of research-- LGB+) and heterosexual women. Understanding how culture indirectly influences sexual health disparities through interpersonal processes may be a step toward creating more equitable sexual health outcomes for queer and heterosexual women (ODPHP, 2019). Therefore, the purpose of this program of research is to model how heteronormativity influences interpersonal and individual processes which may contribute to sexual health disparities across women.

This program of research was split into three manuscripts. The first manuscript created and validated a comprehensive measure of sexual health using a multi-group confirmatory factor analysis (CFA). This latent measurement was then utilized in manuscript two and three. The second manuscript examined how heteronormativity influenced sexual communication self-efficacy and safe sex behaviors in queer women and how those contributed to comprehensive sexual health outcomes. Similarly, the third manuscript examined sexual health communication self-efficacy, safe sex behaviors, and comprehensive sexual health outcomes in heterosexual women. Together, these manuscripts examined how individual, interpersonal, and cultural processes interact and contribute to sexual health disparities. Of note, I used the term queer as an umbrella term to refer to women who are attracted to other women regardless of their self-identified sexual orientation (e.g., bisexual, lesbian, pansexual). Because sexual orientation is comprised of attraction, behavior, and identity, and these may not always align (Vrangalova & Savin-Williams, 2012), the use of queer is a more inclusive approach to capturing a range of queerness among women. Each manuscript is outlined below.

Manuscript 1: Creating a Comprehensive Measure of Sexual Health

As stated previously, to date, much of the sexual health research has focused narrowly on the absence of disease and unintended pregnancy (i.e., physical domains of sexual health). However, the World Health Organization (WHO; 2019) defines comprehensive sexual health as well-being across physical, mental, and social domains. Few studies have attempted to create a comprehensive measure of sexual health and incorporate it into their research. Therefore, most of the sexual health information we know is about disease and unintended pregnancy (Zielinski, 2013). This perpetuates a narrow perspective of what it means to be sexually healthy, who is sexually healthy, and processes that contribute to comprehensive sexual health.

When sexual health is reduced to the absence/presence of negative outcomes it reinforces a stigmatizing and reductionist perspective of sexual health (WHO, 2010a). When positive and comprehensive indicators of sexual health (such as categorizing orgasm as being sexually healthy) are included, we promote positive rhetoric and this has potential to slowly change stigmatizing cultural messages (Ott, Millstein, Ofner, & Halpern-Felsher, 2006). Further, by expanding the conceptualization of sexual health, it creates the ability to ask new and innovative questions that a reductionist conceptualization would overlook. These questions may be more culturally relevant, inclusive, and comprehensive. For example, by including indicators of what it means to be mentally sexually healthy (i.e., positive perceptions about one's sexual identity, low levels of sexual anxiety) we can ask questions about how cultural discrimination of some groups, such as sexual minorities, may contribute to the sexual health disparities these groups face (Hatzenbuehler, 2010).

Thus, the purpose of this study was to create and validate a comprehensive measure of sexual health through a multi-group confirmatory factor analysis. As informed by the WHO's

(2019) definition of sexual health, this measure included indicators of anxiety, depression, perceived physical sexual health, safety, sexual functioning, sexual satisfaction and pleasure, and STIs/HIV. Once validated, this measure was used in manuscripts two and three.

Manuscript 2: The Impact of Heteronormativity on Queer Women's Communication Processes and Comprehensive Sexual Health

For queer individuals, heteronormative sexual scripts are often negative (e.g., homophobic; Meyer, 2003) or simply lacking information important for these groups (i.e. non-inclusive sex education; Baptiste-Roberts, et al., 2017). For example, many queer individuals report never having learned about sex outside of heterosexual relationships throughout their sexuality education (Baptiste-Roberts et al., 2017). GLSEN (2015) states that omitting queer sexual health information in sexuality education puts queer individuals at greater risk for negative sexual health outcomes. Further, queer women are often perceived to be at less risk for STIs and unintended pregnancy (Baptiste-Roberts, et al., 2017; Power, McNair & Carr, 2009), and therefore, sexual health programming frequently ignores them (Baptiste-Roberts, et al., 2017). Thus, many queer women are unaware of their sexual risk, and report under-using safe sex practices, such as barrier methods (Baptiste-Roberts, et al., 2017).

Thus, heteronormativity indirectly influences queer women's engagement in safe sex behaviors due to inaccurate risk perceptions. Importantly, sexual health communication has been found to improve sexual health outcomes (Planned Parenthood, 2019; Quinn-Nilas et al., 2016), and therefore, may be an individual mechanism through which queer women's sexual health can be improved. Taken together, the purpose of this study was to model how sexual health communication self-efficacy can promote more safe-sex behaviors among queer women, and ultimately lead to better comprehensive sexual health outcomes.

Manuscript 3: Heteronormativity, Sexual Health Communication, and Comprehensive Sexual Health in Heterosexual Women

For heterosexual men and women, gender socialization often perpetuates power dynamics (i.e., that men grow up to be strong and aggressive, and women grow up to be quiet and submissive; Lefkowitz, Shearer, Gillen & Espinosa-Hernandez, 2014; Masters, Casey, Wells, & Morrison, 2013). Specifically, heterosexual scripts promote hypermasculinity among men (Ward, 2005) and femininity among women (D'Emilio & Freedman, 2012).

Hypermasculinity is defined as those masculine scripts that promote dominance, hypersexuality, assume men always want to have sex, and that men are sexually skilled (Masters et al., 2013; Ward, 2005). Femininity is characterized as not desiring sex, not knowing very much about sex, and perpetuates higher cultural value of women who have less sexual experience (Masters et al., 2013). These heterosexual scripts directly promote power imbalances when it comes to sex and sexual decision making (Rinaldi-Miles, Quick, & LaVoie, 2014). With that, research suggests that safe sex behaviors are often under-utilized in heterosexual sexual encounters because women are more likely to follow male condom use preferences (i.e., men report often disliking the use of condoms; Cook-Lindsay, 2013) and less likely to discuss their safe sex preferences (Rinaldi-Miles, et al., 2014). Because feminine scripts suggest that women should not understand their sexuality and should be sexually inexperienced, this promotes silence about sexuality leading to less communication. Therefore, heteronormativity influences sexual communication processes, thereby indirectly contributing to health disparities in heterosexual women. Taken together, the purpose of this study was to examine how heteronormativity influences sexual health communication, safe-sex behaviors, and comprehensive sexual health outcomes in heterosexual women

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CHAPTER 2: CREATING A COMPREHENSIVE MEASURE OF SEXUAL HEALTH

Human sexuality is shaped and understood through a series of individual behaviors, interpersonal exchanges, and social constructions-- biology, mental health, and social exchanges all contribute to human sexuality and sexual experiences (WHO, 2010). In other words, human sexuality is more than simply sexual behavior-- it encompasses an entire person interacting with others in context. Therefore, it makes sense that in order to best understand sexual health we must conceptualize (and measure) it comprehensively. The World Health Organization (WHO; 2019) defines comprehensive sexual health as the level of well-being across physical, mental, and social domains. They suggest that comprehensive sexual health “requires a positive and respectful approach to sexuality and sexual relationships, as well as the possibility of having pleasurable and safe sexual experiences, free of coercion, discrimination, and violence” (WHO, 2019, p.1). Many of the leading national organizations consider this the standard when defining sexual health (ASHA, 2020; CDC, 2020; WHO, 2019). However, to date, much of the extant literature has focused primarily on only the physical domain, more generally, and on the presence/absence of disease (e.g., Everett, 2013; Weitzman et al., 2019) and unintended pregnancy (e.g., Finer & Zolna, 2011; Madden et al., 2019), more specifically.

From this limited view focused on physical sexual health, we know that significant health disparities exist across various parts of the population and particularly among women. For example, women are more likely than men to contract and experience complications from a sexually transmitted infection (STI; CDC, 2019). Additionally, in 2011, there were 2.8 million unintended pregnancies among women in the United States with significant variations among women based on various intersectional social locations (Guttmacher Institute, 2019). Rates were highest among low-income women, women between the ages of 18 and 24, women who

cohabited with a partner, and women of color, compared to those who had higher income, were White, had graduated college, and were married respectively (Guttmacher, 2019). Across these population based studies, it is clear that disparities exist across different groups of women.

Only recently have studies started to consider and examine the sexual health of queer women (i.e., an umbrella term for lesbian, bisexual, pansexual, and women who have sex with other women). This emergent research suggests that cisgender queer women are less likely to use protective barriers when engaging in same-gender sexual behavior, putting them at greater risk for STI transmission. For example, rates of Human Papilloma Virus (HPV) and Herpes Simplex Virus 2 (HSV2) are particularly high in cisgender queer female populations (e.g., 36% of women who reported a same gender partner in their lifetime have HSV 2; CDC, 2015). It is also important to acknowledge that these disparities are even higher among trans* women, regardless of their sexual orientation (CDC, 2019)

Thus, there appears to be a disconnect between leading definitions of sexual health and the conceptualizations and measurement strategies of sexual health used in the extant literature. Importantly, the definition of a construct informs the conceptualization of a construct, which then informs the later measurement of that construct (Engel & Schutt, 2014). Additionally, when constructing surveys, it is critical to consider best practices for survey length, time to completion, and funding, to ensure adequate response rates (Urban & van Eeden-Moorefield, 2018), which may dissuade researchers from attempting to measure complex and comprehensive constructs. Constructs, such as comprehensive sexual health, may be complex and therefore, it is critical to include all of the dimensions within conceptualizations to ensure accurate yet, parsimonious measurement (Engel & Schutt, 2014).

Therefore, the purpose of this study was to create and validate (e.g., construct validity; Urban & van Eeden-Moorefield, 2018) a comprehensive measure of sexual health for women that has the potential to add to surveys without overburdening participants by adding too much length or time (See Figure 2.1). The model was grounded in WHO's (2019) conceptual framework of comprehensive sexual health, using a multi-group confirmatory factor analysis (CFA). Informed by the extant literature, the indicator variables included to ensure the presence of each of the three domains were: anxiety, depression, perceived sexual health, feelings of safety, sexual functioning, sexual satisfaction/pleasure, and STIs/HIV. Given the between group sexual health disparities present among queer and heterosexual women, a multi-group CFA was conducted to ensure model fit for both groups.

Literature Review

Again, the WHO (2019) defines comprehensive sexual health as “requir[ing] a positive and respectful approach to sexuality and sexual relationships, as well as the possibility of having pleasurable and safe sexual experiences, free of coercion, discrimination, and violence” (p.1). Using this definition and the extant literature, the author identified seven observed variables to create a latent measure of comprehensive sexual health: anxiety, depression, perceived sexual health, feelings of safety, sexual functioning, sexual satisfaction/pleasure, and STIs/HIV. All of these indicators fall under one of the domains of sexual health (i.e., physical, mental, social). These indicators have all been studied in the sexuality-related literature and therefore, should work together to measure comprehensive sexual health. These are outlined below.

Physical Domain

Sexual Functioning. Sexual functioning has been widely examined across the extant sexual health literature (e.g., Stefanou & McCabe, 2012) and has been used as a significant

indicator of sexual health (WHO, 2010). Sexual functioning (and/or sexual dysfunction) has most often been studied in the context of aging (e.g., Clayton & Harsh, 2016), illness (e.g., Boquiren et al., 2016), and/or trauma (e.g., DiMauro, Renshaw, & Blais, 2018). For example, Clayton and Harsh (2016) examined sexual functioning across aging. They stated that across the life course, women experience multiple biological, mental, and social factors that may impact their sexual functioning. Specifically, female bodies change due to hormone shifts, pregnancy and childbirth, medical problems and medication, as well as mental health issues such as depression. Similarly, WHO (2010), states that sexual functioning is strongly linked to psychological and social processes that are beyond the scope of the person. Thus, sexual functioning is a strong predictor of sexual health across diverse contexts and throughout a woman's life, suggesting that it would contribute to the measurement of comprehensive sexual health.

STI/HIV. STI and HIV diagnoses are a traditional indicator of sexual health. In the extant literature, the absence of disease is indicative of good sexual health, which has led to many prevention initiatives across the globe (WHO, 2010). For example, the CDC conducts STI and HIV population based surveillance studies to examine the prevalence and disparities across diagnoses (e.g., CDC, 2018). Within the literature, STI and HIV diagnoses have most commonly, been studied within male populations, and specifically in men who have sex with other men due to high prevalence rates (Beyrer, et al., 2013). Additionally, much of the extant literature that has examined women, STIs, and HIV examines experiences of women in other countries (e.g., Dude, 2011). Of those that examine HIV and STI rates of women in the United States, many focus on minoritized populations. For example, Painter, Wingwood, DiClemente, DePadilla, & Simpson-Robinson (2012) surveyed 848 African American college women about their educational

attainment and STI/HIV risk. Surveys asked about demographic, psychosocial, and behavioral indicators and also cross-referenced biological vaginal swabs that tested for STIs. They found that African American women who attended college were 73% less likely to have an STI or HIV when compared to those who did not. Taken together, STIs and HIV have been vastly explored across the literature with diverse populations, and should be a good indicator of sexual health.

Mental Domain

Anxiety. Sexual anxiety is defined as discomfort, worry, or anxiety about one's self and/or sexuality (Brassard, Dupuy, Bergeron, & Shaver, 2015). Much of the extant sexual health research has examined the impact of anxiety on sexual functioning and sexual satisfaction (e.g., Brassard et al., 2015). For example, Brassard and colleagues (2015) conducted a mediation analysis which examined the role that sexual anxiety had in women's sexual functioning and satisfaction. They surveyed 556 women who had anxious and avoidant attachment styles and found that women with higher levels of sexual anxiety, and lower levels of sexual self-esteem, had lower sexual functioning and lower sexual satisfaction. Research also suggests that anxiety may contribute differently to sexual health outcomes for queer and heterosexual women. Beaber and Werner (2009) examined the relationship between anxiety and sexual functioning in lesbian and heterosexual women using online surveys which targeted women with anxiety. They found that lesbian women reported more sexual satisfaction than heterosexual women (i.e., higher levels of arousal and higher frequency of orgasms). Contrastingly, heterosexual women with anxiety experienced lower levels of sexual functioning and sexual satisfaction. Studies such as these suggest that sexual anxiety is an indicator of sexual health, which supports that it would be a strong indicator of comprehensive sexual health.

Depression. Much of the extant literature has examined depression as a contributor to sexual health outcomes. The research suggests that women are more likely than men to experience depression, which in turn contributes to greater sexual dysfunction (i.e., lubrication, desire, orgasm; Dobkin, Leiblum, Rosen, Menza & Marin, 2006). Additionally, many of the medications used to treat depression reduce women's sexual interest and sexual response (Dobkin, 2006). Lykins, Janssen, and Graham (2006) examined how anxiety and depression contributed to college aged women's sexual excitation and inhibition. They found that most women were not interested in engaging in sexual behavior when they were anxious or depressed. In another study on college women with depression, Frolich and Meston (2002) found that women who had depression were had lower sexual satisfaction, lower arousal, more inhibited orgasms, and more sexual pain. Additionally, they found that women who were depressed were more likely to engage in solo masturbation when compared to their non-depressed counterparts.

However, the use of depression as an indicator of sexual health has been underexplored. For queer and heterosexual women, heteronormative cultural messages that silence and shame women for their sexuality may contribute to negative mental health outcomes, such as depression (Easton & Hardy, 2009). Additionally, for queer individuals, cultural discrimination and homophobia may lead to depression (Meyer, 2003). Thus, depression may be an indicator of sexual health and therefore, should be included in the comprehensive measurement of it.

Perceived Sexual Health. Perceived sexual health consists of one's own perception of how sexually health they are. In the sexual health research, this self-perception of sexual health as an indicator of sexual health has been underexplored. Hebernick and colleagues (2010) examined women's sexual behaviors, relationships, and perceived health status using the NSSHB national dataset. They found that women who perceived themselves to be more sexually

healthy were more interested in engaging in sex, may have more opportunities to engage in sex, and may have an easier time engaging in sexual intercourse. Thus, perceptions may be influential in a woman's desire and overall, perception of her sexuality. Therefore, perceptions of sexual health may be a strong indicator of sexual health.

Social Domain

Sexual Satisfaction. Sexual satisfaction has been largely examined in the previous literature. Specifically, the extant literature has studied individual, interpersonal, and cultural factors that contribute to sexual satisfaction (e.g., Biss & Horne, 2005) as well as other relational processes that sexual satisfaction is related to (e.g., relationship satisfaction; Heiman et al., 2011). Specifically, sexual satisfaction has been found to be a key contributor to overall well-being across the lifespan for women (Woloski-Wruble, Oliel, Leefsma, & Hochner-Celnikier, 2010). Holmberg, Blair, and Phillips (2010), modeled how sexual satisfaction related to relationship well-being, mental health, and physical health for women in same-gender vs. mixed-gender relationships. They found that sexual satisfaction was a strong predictor of relationship well-being and mental health regardless of relationship type. Additionally, sexual satisfaction may be a sexual health outcome that is influenced by mental health and culture (Biss & Horne, 2005). Biss and Horne (2005) surveyed 596 queer men and women to understand how psychological well-being, in the context of a heteronormative culture, influenced sexual satisfaction. They found that living with a partner, age, internalized homonegativity, and other relational processes all contributed to sexual satisfaction. Therefore, sexual satisfaction may be an indicator of comprehensive sexual health and therefore, was included in the model.

Safety. Outside of the sexual assault literature (e.g., Ahrens, Abeling, Ahmad, & Hinman, 2010), scant sexual health research has examined the role that feeling safe in a sexual

encounter has on women's sexual health outcomes. Additionally, most of the sexual health research that examines safety in sexual encounters focuses on safe sex behaviors (e.g., McBride, & Fortenberry, 2010), rather than feeling safe in the sexual encounters. In other words, this indicator has been underexplored as an indicator of sexual health in the context of consensual relationships. However according to the WHO (2019) definition of sexual health, feeling safe is an important aspect. Thus, theoretically, feelings of safety during a sexual encounter should be a strong indicator of sexual health, and therefore, it was added to the model.

Summary

In summary, these seven indicators have been used, to some extent, as indicators of sexual health across the extant sexual health literature. However, no study has examined how they function together to measure comprehensive sexual health. Importantly, these indicators are grounded in the WHO (2019) conceptualization of comprehensive sexual health, suggesting theoretical support. Specifically, they span all sexual health domains, as defined by WHO (2019), and have all been used to measure sexual health to some extent. Therefore, it is predicted that these indicators should accurately and comprehensively measure sexual health as a latent variable.

Methods

Data Collection

Using social media to recruit participants for research has become popular, due to its ability to reach widespread diverse networks and its ease of online survey dissemination (Urban & van Eeden-Moorefield, 2018; Gelinas et al., 2017). Also, online surveys have been found to be a useful methodology when discussing sensitive information, such as questions about sex and health, because of their enhanced anonymity (i.e., the researcher may never know the identity of

the participant; Lefever, Dal, & Matthaisdottir, 2007). Accordingly, data were collected using a 30-minute online cross-sectional survey created in Qualtrics. The recruitment announcement (Appendix A) and survey link were posted on the research team members' personal Facebook profiles, which asked friends to participate in a survey about sexual health. The announcement also asked Facebook friends to please share the recruitment announcement on their own Facebook pages (i.e., convenience/snowball sampling). Facebook has become a popular forum for survey recruitment because of its widespread use and ability to reach diverse populations (Pederson & Kurz, 2016). Additionally, studies focused on health have had particular success recruiting participants through Facebook because of its low cost and ability to reach participants for follow up questions if necessary (Pederson & Kurz, 2016). Participants who decided to participate in the survey, clicked the survey link and were redirected to the Qualtrics survey (Qualtrics, 2020). At the beginning of the survey, participants were required to provide informed consent (Appendix B) and could only participate if they were 18 years or older. From there, they were redirected to the survey questions (Appendix C). At the end of the survey, in the Thank You message (Appendix D), participants were provided the option to enter a raffle to win one of 40 \$25 Amazon gift cards. If participants decided that they wanted to participate, they clicked a link which redirected them to a separate unlinked survey (Appendix E), which asked for their email address. All identifying information was kept separate from survey responses to ensure anonymity of survey responses. Participants were only allowed to participate in the survey one time to ensure data independence. In other words, the survey could not be completed multiple times from the same IP address (Birnbaum, 2004).

Participants

The sample consisted of a convenience sample of 247 cisgender heterosexual and queer women. This met power needs for the analysis (.90; G*Power). Participants' ages ranged from 19 to 82 years old ($M = 33.26$, $SD = 10.27$). The majority of the sample self-identified as heterosexual (76.10%) followed by women who identified as bisexual (9.70%), lesbian (5.70%), pansexual (4.0%), queer (2.40%), and asexual (2.0%). The majority of the sample was Non-Hispanic White (89.10%) followed by Latina or Hispanic (7.30%), East Asian/Asian American (2.0%), Native America/Alaska Native (1.20%), South Asian/Indian American (1.20%), Middle Eastern/Arab American (1.20%), Black or African American (<1.00%), and Hawaiian or Pacific Islander (<1.00%). The sample was highly educated: 78.90% of participants reported earning a Bachelor's degree or an advanced degree (e.g., Master's, PhD). Five percent of the sample earned a high school degree, 9.70% took some college courses, 4.50% earned an Associate's degree, and 1.60% of participants reported technical school education. Additionally, more than half of our participants reported a yearly household income of more than \$75,000.

Measures

The survey asked participants general demographic information (e.g., age, sexual identity, race/ethnicity). Additionally, participants were asked to reflect on their sexual experiences within the last 12 months when answering all questions. With regard to STI/HIV diagnoses, the CDC (2015) suggests that individuals get tested every 12 months and therefore, some sexual health outcomes may not become known until 12 months later. All measurement scores were coded and summed so that higher scores indicated better comprehensive sexual health (e.g., lower depression scores indicated better sexual health so they were reversed coded; See Table 2.1).

Anxiety. A three-item author created scale measured sexual anxiety. A sample question was “I generally feel anxious about masturbation” (*1= Not true of me at all, 7= Very true of me*). This scale was reversed scored so that higher scores indicated lower sexual anxiety.

Depression. A modified 10-item version of Radloff (1977) CESD-R was used to measure depressive symptoms. Questions asked participants to indicate the number of times they felt or behaved in a certain way in the last week (*1= Rarely or none of the time; less than 1 day, 4= Most or all of the time; 5-7 days*). A sample question included: “I had trouble keeping my mind on what I was doing.” This scale was reversed scored so that higher scores indicated lower levels of depression (i.e., more sexual health).

Perceived sexual health. A global perceived sexual health measure was created by the author(s). The question asked, “To what extent do you feel you are physically healthy enough to have sex?” (*1= Not at all healthy, 4=Very healthy*). Most participants believed that they were physically healthy enough to have sex.

Safety. An author created global measure of perceived safety in sexual encounters was used. The question asked “Think about the last time you engaged in sex with a partner. How safe did you feel?” (*1= Not safe at all, 5=Very safe*). Most participants reported feeling very safe in their sexual encounters.

Sexual functioning. A modified 5-item version of Rosen’s (2000) Female Sexual Function Index was used to assess female sexual functioning (e.g., lubrication). A sample question was “How often did you find it difficult to have an orgasm when you wanted to?” (*1= Never, 7= Always*). Scores were reversed coded so that higher scores reflected higher sexual functioning (in contrast to higher sexual dysfunction).

Sexual Satisfaction. The author modified a version of the Male Sexual Health Questionnaire (Rosen et al., 2004) to use with women to measure sexual satisfaction. Specifically, gendered language was removed so that questions were inclusive of women. A sample question included “How satisfied are you with the quality of the sex life you have?” ($1 = \text{Not at all satisfied}, 5 = \text{Very satisfied}$).

STIs/HIV. Author created questions were used to assess participant STI and HIV diagnoses and experiences. Questions asked the number of times participants had been diagnosed with Chlamydia, Gonorrhea, and/or Syphilis over the last year. Questions also asked if participants had herpes and/or HIV because they are treatable chronic conditions (i.e., you can only get them once); two single-item measures were used to identify if participants had herpes or HIV. The questions asked, “Do you have herpes?” and “Do you have HIV?” Answers included “yes, no, not sure, prefer not to answer.” In this sample, no women responded that they were HIV positive and therefore, HIV was excluded from scale combination. Because herpes is a chronic condition, it can only be contracted once and therefore herpes was recoded so that yes = 1 and no = 0. Then all STI scores were combined. Higher scores indicted fewer STIs and therefore, better sexual health. Most participants had never been diagnoses with an STI.

Data Analysis Plan

Through substantial research and conceptual grounding in the WHO’s (2019) definition of sexual health, criteria for model specification were met prior to data analysis. Specifically, seven factors were identified as important concepts of sexual health and used as indicators to be loaded onto one latent variable of comprehensive sexual health. No factors or measurement errors were hypothesized to be correlated to one another initially, but some research indicates that some correlations might be plausible. This was considered during analysis. Next, model

identification was assessed. This model was over-identified ($df=14$) and therefore, parameter estimation occurred.

Data were imported into SPSS for cleaning, assessment of normality, and assessment of missingness. Responses were missing at random (i.e., no more than 20% missing per variable; Schumacker & Lomax, 2010). Data were then imported into Mplus 8.0 and missing data were computed using Full Information Maximum Likelihood (FIML; Muthen & Muthen, 2017) because of its reliability to produce accurate, unbiased, and robust estimates when compared to other missing data strategies (e.g., similar response pattern imputation; Enders & Bandalos, 2001). Additionally, FIML is less likely to have convergence failures when running SEM (Enders & Bandalos, 2001). One heterosexual woman was excluded because data was missing on all variables making the final sample size 246.

Using Maximum Likelihood Estimation with standardized output, we conducted a multi-group confirmatory factor analysis (CFA) to assess model fit. Chi Square (χ^2) test, Root Mean Square Error Approximation (RMSEA), and Critical Fit Index (CFI; Schumacker & Lomax, 2010) were used as model fit indicators. Mplus automatically sets one factor loading to 1. Additionally, standardized estimates and standard errors were recorded for each observed factor, which showed the factors that were significant contributors to the latent variable and accounted for more of the variance across the latent measure. Additionally, MODINDICES were used to identify any theoretically sound modifications that could be added to enhance model fit (Muthen & Muthen, 2017; Schumacker & Lomax, 2010).

Results

A multi-group confirmatory factor analysis (CFA) was conducted using maximum likelihood estimation (Schumacker & Lomax, 2010) to ensure fit of the measurement model for

both queer and heterosexual women. Originally, model fit was not strong (e.g., RMSEA > .07). However, modification indices suggested that sexual functioning and safety be correlated and sexual satisfaction and safety be correlated, for better model fit. These correlations were added to the model, because theoretically they made sense although there is limited empirical evidence that has examined these relationships: if a woman feels safe she may experience better sexual functioning and more sexual satisfaction (Jozkowski & Wiersma- Mosley, 2015). Once these modifications were added, model fit indices denoted strong fit (RMSEA = 0.06, CFI = 0.93, TLI = 0.92). However, the chi-square test suggested slight differences in the queer and heterosexual latent measurement models, particularly regarding strength of factor loadings $\chi^2(36, N = 246) = 52.89, p < .05$. Importantly, all significance of factor loadings remained the same across both models.

All factor loadings for both models were statistically significant except for STI diagnoses (see Table 2.2, Figure 2.2, and Figure 2.3). Theoretically, STI diagnoses should be a strong indicator of sexual health. Therefore, this path was not trimmed from the model. Additionally, 84.60% of participants reported that they had never been diagnosed with an STI, so there was limited variation across STI diagnoses scores. Sexual satisfaction, anxiety, and sexual functioning had the strongest factor loadings for both queer and heterosexual women, however the strength of the factor loadings differed. Specifically, sexual satisfaction, anxiety, and sexual functioning had a moderate to large effect on queer women's comprehensive sexual health. In contrast, these indicators had small to moderate effect on heterosexual women's comprehensive sexual health.

Discussion

A multigroup CFA was used to validate the latent measure of comprehensive sexual health, grounded in the WHO's (2019) definition of sexual health, for queer and heterosexual women. Data from 246 women, from an online survey, collected through social media were used to validate this measure. The sample was mostly White, highly educated, and made over \$75,000 annually, and therefore, relatively homogenous and lacking variation.

Results suggested strong model fit for both queer and heterosexual women, proposing that this latent measure is a good predictor of comprehensive sexual health for women. Importantly, this measure is one of the first parsimonious measurements of comprehensive sexual health and should be used in future research. By using this measurement, scholars may be able to ask research questions that seek to understand comprehensive sexual health rather than single biological indicators (e.g., STIs). Additionally, future research can ask questions about individual, interpersonal, and social influences on comprehensive sexual health, which considers sexuality as more than biology. For example, new sexual health disparities, specific to women, can be explored such as orgasm gaps (e.g., Frederick, John, Garcia, & Lloyd, 2017) feelings of safety in consensual sexual encounters (Jozkowski & Wiersma, 2015), and sexuality specific anxiety and depression (Kalmbach, Kingsberg, & Cielsa, 2014).

Importantly, sexual satisfaction, anxiety, and sexual functioning strongly loaded onto comprehensive sexual health, and accounted for a significant amount of variance across the measurement for both queer and heterosexual women. This is an important finding, because although the significant chi square statistic suggested that sexual orientation may moderate the strength of indicator relationship (i.e., queer women and heterosexual women have slightly different models of sexual health), these three indicators were the strongest factor loadings on

comprehensive sexual health for both models. Queer women's factor loadings were stronger than heterosexual women's suggesting a stronger relationship between those three indicators for queer women. This is in line with previous literature (e.g., Garcia, Llyod, Wallen, & Risher, 2014; Frederick, John, Garcia, and Lloyd, 2018).

First, research suggests that queer women experience more sexual satisfaction in their sexual encounters when compared to heterosexual women (Garcia et al., 2014). Using an online survey, Garcia and colleagues examined orgasm occurrence across sexual orientation and gender. They found the mean occurrence of orgasm for lesbian women was 74.70% compared to 61.60% for heterosexual women. However, interestingly in their study they found that the mean orgasm rates for bisexual women was less than both lesbian and heterosexual women.

Contrastingly, Frederick and colleagues (2018) used a national sample and found that lesbian and bisexual women were more likely than heterosexual women to report orgasming while engaging in sexual intercourse. This study posited that perhaps queer women experienced more orgasms because women in same-gender sexual encounters are more aware of behaviors that would lead to sexual satisfaction in their partners when compared to different-gender sexual encounters. Queer women may experience more sexual satisfaction in their relationships, which may influence how much it impacts their sexual health. That being said, sexual satisfaction was the most influential indicator of comprehensive sexual health for both queer and heterosexual women.

Anxiety was another strong predictor of comprehensive sexual health for queer and heterosexual women. For women specifically, experiences of anxiety may ebb and flow across the lifespan, due to life stressors, hormonal fluctuations (Hantsoo & Epperson, 2017) and cultural values and norms (Hofmann & Hinton, 2014). It is important to note that generally, women are

often shamed for their sexuality, regardless of their sexual orientation (Easton & Hardy, 2009) and internalizing these beliefs may lead to negative physical and mental health outcomes (Easton & Hardy, 2009). According to sexual scripting theory (Wiederman, 2005), culture creates gendered and rigid scripts regarding sexuality and sexual processes. These create guidelines for sexual behaviors that are often internalized. For women, these scripts teach women that they should not be sexual or discuss sexuality. Therefore, when women are asked about their sexuality or their sexual behaviors it is possible that provokes feelings of anxiety (Wiederman, 2005). However, for queer women, within group cultural scripts promote sexual pleasure and normalize engaging in sexual behavior (e.g., masturbation; Meiller & Hargons, 2019). Thus, heterosexual women may identify more strongly with larger cultural scripts that stigmatize female sexuality and thus, it may not be as strong of an indicator of comprehensive sexual health.

Research suggests that sexual functioning, and particularly sexual dysfunction, is a common concern for women (Faubion & Rullo, 2015). When a woman experiences sexual dysfunction, she may lose sexual interest, may find it challenging to become aroused, may not be able to reach orgasm, and may experience pain during sexual intercourse (Faubion & Rullo, 2015). Sexual functioning may also be contingent upon mental and physical health (Nobre & Pinto-Gouveia, 2006). For example, Nobre & Pinto-Gouveia (2006) examined emotional responses to regular thoughts that often occur during sexual activity. They found that both men and women who had less sexual functioning may experience more thoughts of sadness, disillusion, and fear (i.e., negative thoughts). Flynn, Lin, and Weinfurt (2017) conducted a cross-sectional online survey to examine sexual function and satisfaction across gender and sexual orientation. They found that lesbian women may experience less vaginal discomfort, higher lubrication, and easier orgasms when compared to heterosexual women. However, bisexual

women had more vulvar and labial discomfort, and higher anal discomfort when compared to heterosexual women. There were no differences among women in clitoral discomfort, or pleasure from orgasms and sexual satisfaction. Thus, sexual functioning is an important factor in women's sexual health and may be varied based on numerous factors.

Future Research and Limitations

Taken together, although models were slightly different, model fit for the latent measure of comprehensive sexual health for both queer and heterosexual women was strong. It is important to recognize that sexual satisfaction, anxiety, and sexual functioning were three of the strongest indicators of comprehensive sexual health across women regardless of their sexual orientation. Additionally, all indicators except for STI diagnoses were significant measures of comprehensive sexual health. Future models should examine how STIs play a role in comprehensive sexual health, since the lack of significance in this model was likely due to error and homogeneous samples. One such way to gain access to participants with diverse STI diagnoses would be to recruit through STI clinics that serve at risk populations (Carey, Vanable, Coury-Doniger, & Urban, 2005). Additionally, populations based studies could employ this measure of comprehensive sexual health, which would greatly contribute to the literature and also access diverse populations. Further, while this measure is parsimonious, it may be important for surveys to be shorter, to ensure that participants complete the survey (Urban & van Eeden-Moorefield, 2018). Perhaps creating some single item measurements that encompass each domain of sexual health (i.e., how physically healthy do you feel, how mentally healthy do you feel, how socially healthy do you feel), would provide a comprehensive approach to measuring sexual health.

Moreover, this study did not ask about experiences with unintended pregnancy, which is a traditional indicator of sexual health. The study chose not to include this indicator within the comprehensive measurement of sexual health because unintended pregnancy is not mentioned within the WHO (2019) conceptualization. Future research could include unintended pregnancy as an indicator of comprehensive measurement of sexual health to understand how that may change the measurement. Finally, future research should use this model in more diverse populations to understand comprehensive sexual health across diverse intersections. The sample used in this study was very homogenous (White) and privileged. The extant literature suggests that women of color, who are less educated, and low income are disproportionately impacted by sexual health disparities (CDC, 2020, Guttmacher, 2019). To survey more diverse populations through social media, future research should use targeted advertisements to encourage diverse groups of women to participate (NIH, 2020). Therefore, applying this measurement to a sample that resembles those characteristics more closely may exhibit different results. Taken together, this study is a first step toward finding a comprehensive measurement of sexual health that reflects the comprehensive definitions commonly used in health organizations.

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Table 2.1

Measurement Descriptive Information

Measure	Min	Max	<i>M (SD)</i>	α
Anx*	3	21	17.49 (4.15)	.70
Dep*	14	40	30.97 (6.35)	.88
PSH	1	4	3.68 (.60)	---
Safe	2	5	4.83 (.53)	---
SFW*	9	35	24.03 (5.73)	.82
SexSat	6	30	21.10 (6.90)	.94
STI*	0	6	5.79 (.80)	.76

Note. *Scales were recoded so that higher scores indicate better sexual health.

Anx= Anxiety, Dep= Depression, PSH= perceived physical sexual health, safe= safety, SFW= sexual functioning, SexSat= sexual satisfaction, STI= Sexually transmitted infections

Table 2.2

Comprehensive Sexual Health Observed Variable Factor Loadings

<u>Queer Women</u>			<u>Heterosexual Women</u>		
Observed Variable	Estimate	S.E.	Observed Variable	Estimate	S.E.
Sexual Satisfaction	0.74*	0.06	Sexual Satisfaction	0.57*	0.06
Anxiety	0.71*	0.07	Anxiety	0.49*	0.06
Sexual Functioning	0.64*	0.07	Sexual Functioning	0.53*	0.07
Depression	0.56*	0.07	Depression	0.50*	0.07
Perceived Sexual Health	0.51*	0.07	Perceived Sexual Health	0.41*	0.07
Safety	0.51*	0.07	Safety	0.32*	0.08
STI	0.03	0.08	STI	0.04	0.08

Note. * indicates $p < .05$

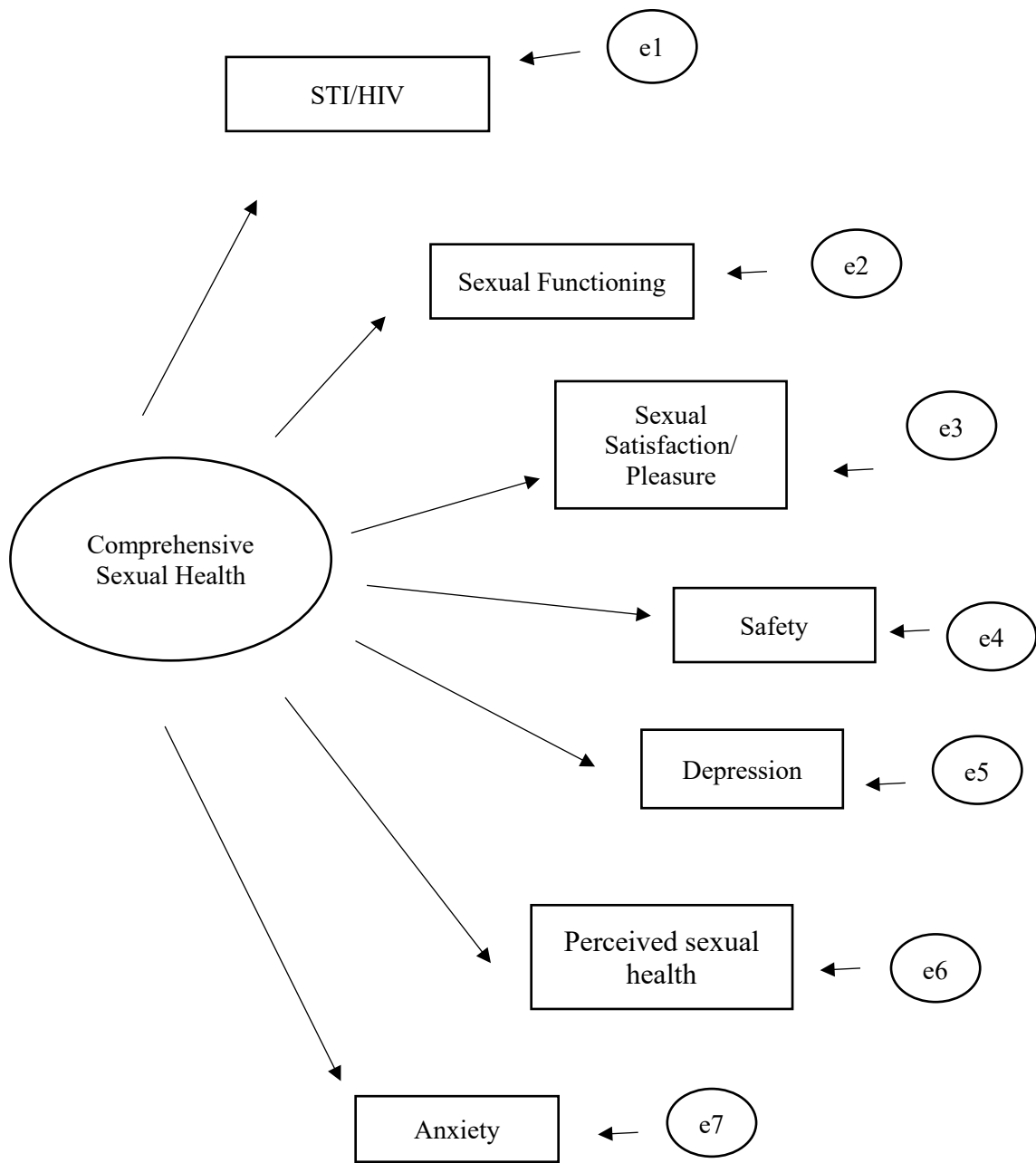


Figure 2.1. Hypothesized model.

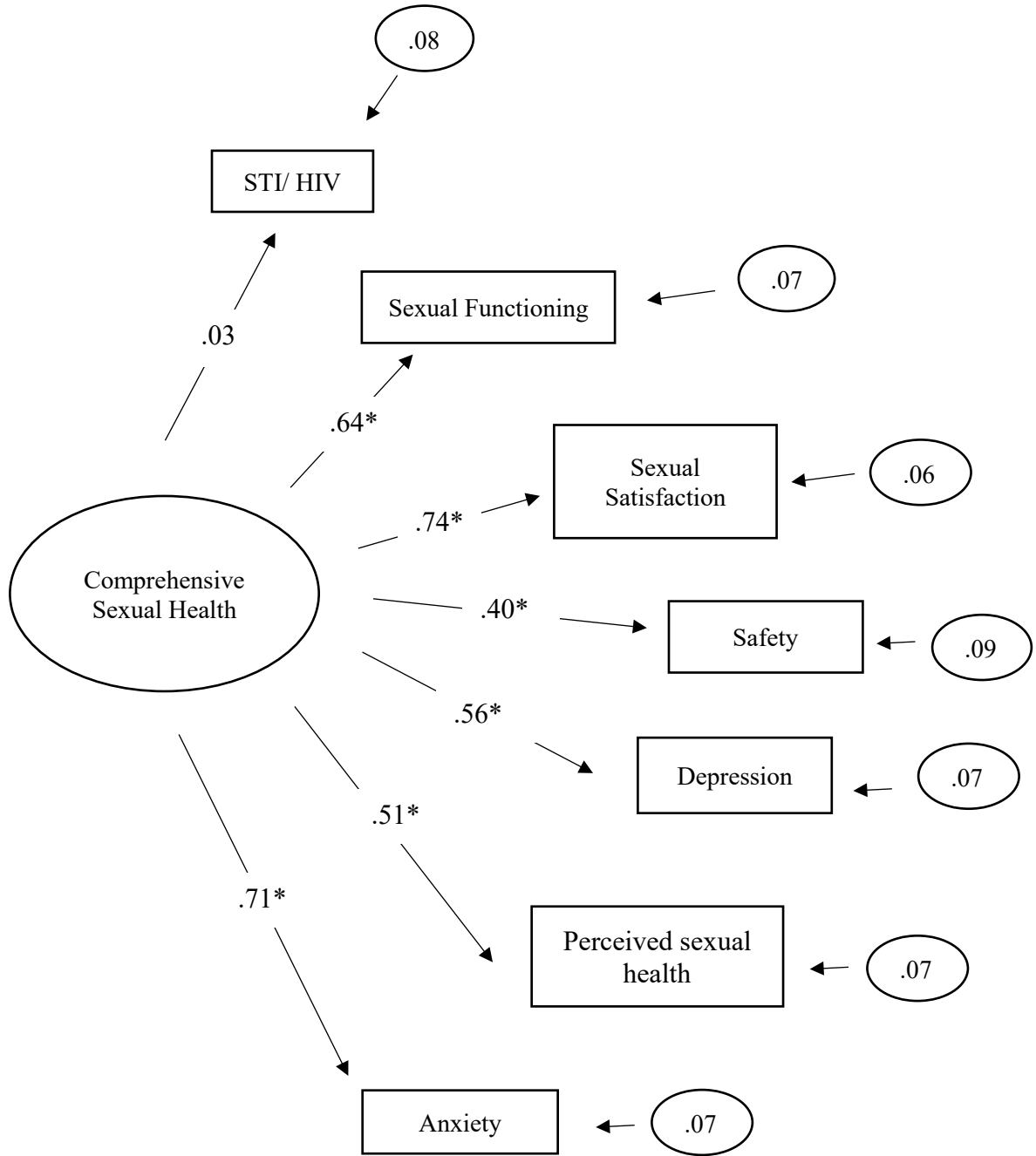


Figure 2.2. Confirmatory factor analysis: seven-factor model of Comprehensive Sexual Health for queer women with factor loadings and standard error.

Note: * $p < .05$

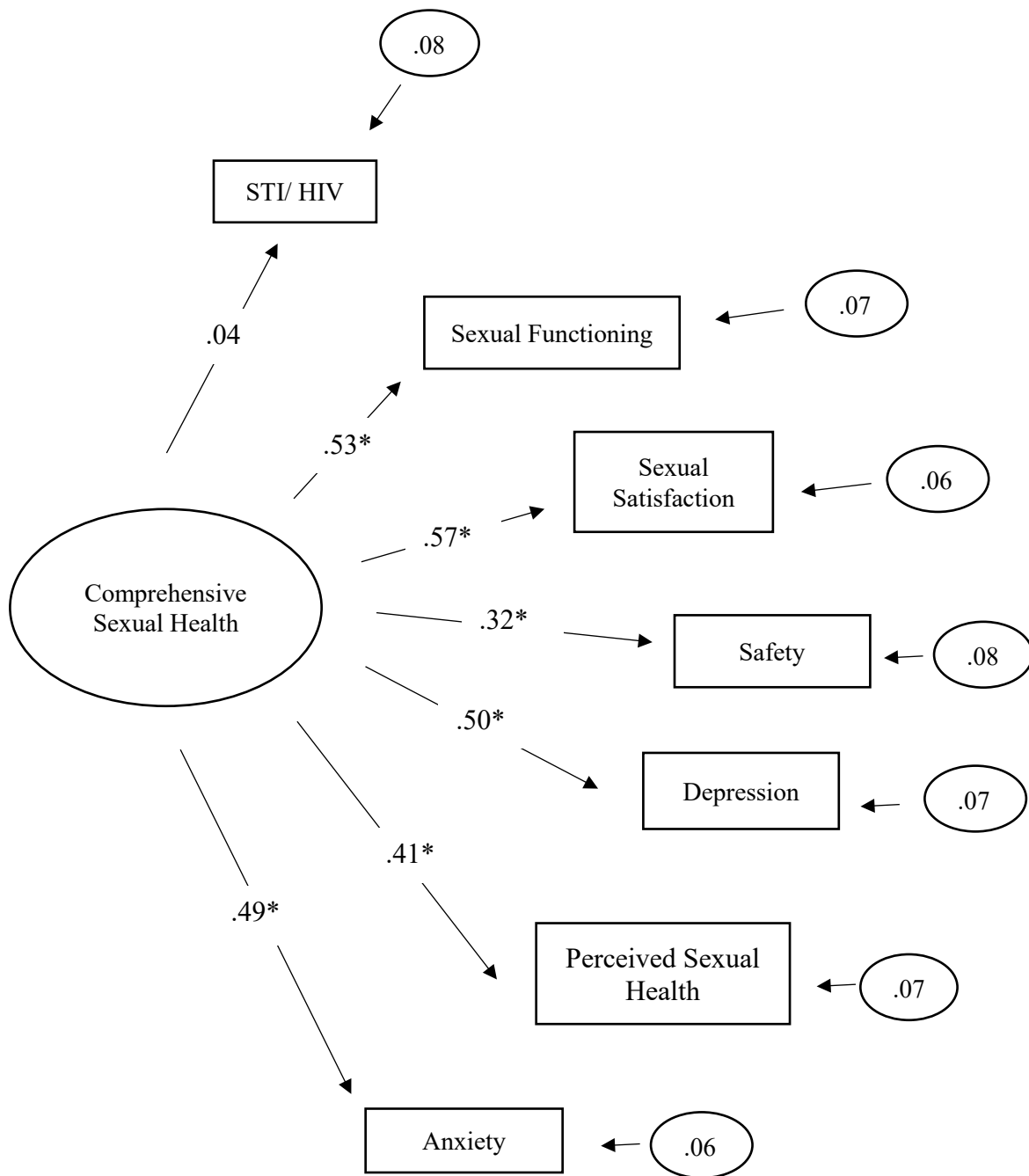


Figure 2.3. Confirmatory factor analysis: seven-factor model of Comprehensive Sexual Health for Heterosexual Women with factor loadings and standard error.

Note. * $p < .05$

CHAPTER 3: THE IMPACT OF HETERONORMATIVITY ON QUEER WOMEN'S COMMUNICATION PROCESSES AND COMPREHENSIVE SEXUAL HEALTH

Health disparities are present when members of a particular minoritized group (e.g., LGBTQ women) have greater risk for, or actually experience, poorer health compared to those in a majority group (Russell, Coleman, & Ganong, 2018). Decades of documentation suggest such disparities are pervasive in the United States (Weinstein, Geller, Negussie, & Baciu, 2017), and the types of health outcomes tracked range from mental health and substance abuse to sexual health and general physical health (CDC, 2017; Weinstein et al., 2017). Unfortunately, statistics on queer women's (e.g., bisexual, lesbian, pansexual), sexual health are limited but do suggest the presence of some significant sexual health disparities (Baptiste- Roberts, Oranuba, Werts, & Edwards, 2017). Of note, we use the term queer as an umbrella term to refer to women who are attracted to other women regardless of their self-identified sexual orientation. Because sexual orientation is comprised of attraction, behavior, and identity, and these may not always align (Vrangalova & Savin-Williams, 2012), the use of *queer* is a more inclusive approach to capturing a range of queerness among women. Most queer sexual health programming and research has focused exclusively on queer, cisgender men, likely due to a long-standing focus on the HIV/AIDS crisis and their perceived risk of disease acquisition (Power, McNair & Carr, 2009). Further, most female sexual health research and programming has focused on cisgender, heterosexual women (Baptiste-Roberts, et al., 2017), suggesting that queer women are underexamined and underserved.

As stated, research, albeit limited, suggests queer women may be at risk for sexual health disparities. For example, reports suggest that Human Papilloma Virus (HPV) is a common sexually transmitted infection (STI) diagnosed in women who have sex with other women

(WSW; i.e., an umbrella term that includes queer women; CDC, 2015a). The CDC (2015a) reports that 13%-30% of WSW have some strain of HPV. Additionally, best estimates suggest that 36% of women who reported having a same-gender partner in their lifetime had HSV-2 antibodies (i.e., the herpes virus), which is higher than women who reported never engaging in same-gender behavior (24%). Transmission of the herpes simplex virus (HSV-1 & HSV-2) may be higher in same-gender sexual encounters due to the prevalence of oral sex in these sexual relationships when compared to different-gender sexual encounters (CDC, 2015a). Although there are few statistics on bacterial infections, queer women are still at high risk for chlamydia, gonorrhea, syphilis, and hepatitis A, B, and C due to limited use of barrier methods in sexual encounters (Mount Sinai Adolescent Health Center, 2017; Power et al., 2009; Knight & Jarrett, 2017).

Importantly, health is not solely determined by the absence of disease, but instead, is a product of the larger social, structural, and political context in which some lives are more valued than others (Ratcliff, 2017). Accordingly, health disparities often emerge. The Determinants of Health (DoH) framework created by the World Health Organization explains how social contextual factors, such as cultural inequities, contribute to differential health outcomes (Office of Disease Prevention; ODPHP, 2019; WHO, 2019). It asserts that there are five DoH (i.e., policymaking, social factors, health services, individual behavior, and biology and genetics) that influence the presence of health disparities. This study focuses on the influence of social factors on individual and interpersonal sexual health processes (ODPHP, 2019).

Social factors are defined as those macro level phenomenon that may influence health, and contribute to health disparities (ODPHP, 2019). These include, but are not limited to, social norms and attitudes (including discrimination), availability of resources, social support, mass

media, and socioeconomic factors (ODPHP, 2019). Such influences often, but not always, are indirect and stem from issues of cultural exclusion and inclusion. This may contribute to queer health disparities, and more specifically sexual health disparities. For example, heteronormativity is a social factor that privileges sexual partnering between two married, cisgender, and heterosexually-identified individuals (van Eeden-Moorefield, 2018) and has shaped the foundation of many of our social structures (Herek, 2004). Most sexuality education curriculum (e.g., exclusion of queer sexual health and identities; Guttmacher Institute, 2019), policies (e.g., adoption policies and child custody policies for queer families; van Eeden-Moorefield, 2018), and the healthcare system (e.g., patient is often assumed to be heterosexual unless otherwise stated; Sekoni, Gale, Manga-Atangana, Bhaduri, & Jolly, 2017; van Eeden-Moorefield, 2018) are heteronormative. In turn, queer women are often underserved because they fall outside of the heterosexual norm. Accordingly, queer women may find themselves with little information about maintaining their sexual health and how to discuss it with others (Marazzo, Coffey, and Bingham, 2005)

Further, heteronormativity may influence individual behaviors (e.g., communication), another DoH (ODPHP, 2019). For example, most learn that penile penetrative sexual behavior is one of the only ways to have sexual intercourse in heterosexual relationships and carries high sexual risk (McNeill, 2013). WSW do not typically engage in penile penetration, and therefore, may assume that they are at lower sexual risk (Baptiste- Roberts, et al., 2017). Therefore, this heteronormative perspective of sexual behavior and sexual risk would lead to the assumption (both culturally and medically) that in order to have sexual risk, penile penetration is necessary. Because of this presumption queer women may perceive they are not at risk for HIV, STIs or unintended pregnancy and, accordingly, have reported underusing barrier methods (Baptiste-

Roberts et al., 2017). Such an example demonstrates how heteronormativity can influence individual behaviors in a way that accounts for the presence of a health disparity among queer women. Taken together, individual behaviors can act as a mechanism through which cultural factors influence health, and this may be a particularly salient pathway among queer women.

To be more inclusive of queer women's experiences, sexual health research must examine how both individual, interpersonal, and social processes operate in determining sexual health outcomes, especially those that represent disparities (Baptiste-Roberts et al., 2017; Weinstein et al., 2017; ODPHP, 2019). Earlier, we describe how the cultural factor of heteronormativity might be linked to health (Meyer, 2003). We suggested that its link is through individual behaviors. Prior research suggests the role of sexual health communication (which may include, but is not limited to, the discussion of one's sexuality with another person, sexual history, concerns, consent, and desires; Horan, 2016; Lehmiller, VanderDrift, & Kelly, 2014), may be a process through which heteronormativity is perpetuated. For example, we know that women who communicate about their sexual health with a potential partner are likely to engage in more safe-sex practices, which, in turn, predicts improved sexual health outcomes (Lehmiller, et al., 2014). This is likely due to increased discussion between partners about their sexual health histories and discussion of safe sex preferences (Lehmiller, et al., 2014; Quinn-Nilas et al., 2016). Yet, heteronormative messages about sexual health may indirectly lead to inaccurate health risk perceptions in queer women (i.e., that they are not at risk for STIs) and therefore, they may not feel the need to discuss their sexual health or engage in safe sex practices. Using focus groups, Marazzo and colleagues (2005) examined queer women's sexual practices and understanding of sexual health. They found that many queer women were not well versed in preventative sexual health measures (e.g., washing sex toys between partner usage). Those that

used barrier methods reported doing so if someone reported having an STI. Therefore, they were used, but relatively infrequently. By improving sexual communication self-efficacy (i.e., an individual's perception of how well they communicate about their sexuality with a partner; Quinn-Nilas, et al. 2016) among queer women, perhaps safe sex behaviors will improve, and queer women will have better comprehensive sexual health outcomes. Therefore, the purpose of this study was to test a model examining how heteronormativity influences sexual health communication self-efficacy in queer female populations, and how that influences comprehensive sexual health outcomes. The hypothesized model was outlined below.

Model Hypothesis

We know that there is a relationship between sexual health communication, safe sex behaviors, and comprehensive sexual health outcomes (e.g., Quinn-Nilas et al., 2016). However, cultural heteronormativity may alter this relationship, because queer women are left with inaccurate information about their sexual risk (Baptiste-Roberts et al., 2017), and also there is stigma surrounding women discussing their sexuality (Easton & Hardy, 2009). Therefore, we hypothesized that there would be a direct relationship between sexual communication self-efficacy and comprehensive sexual health. This relationship would be partially mediated by safe sex behaviors since this is a mechanism to improve sexual health outcomes (CDC, 2020). Further, heteronormativity experienced by queer women would moderate the relationship between sexual communication self-efficacy and safe sex behaviors because queer women may not understand the importance of discussing sexual health due to misinformation about their sexual risk (Baptiste-Roberts et al., 2017). Heteronormativity would also moderate the relationship between safe sex behaviors and sexual health outcomes because queer women may

choose to forgo engaging in safe sex practices due to misperceptions of risk (Marazzo et al., 2005).

Methods

Design

This study used a 30-minute cross-sectional Internet survey design. Online surveys are cost effective and time efficient (Urban & van Eeden-Moorefield, 2018). Online methodologies enable more diversity by casting a wide recruitment net (van Eeden-Moorefield, Proulx, & Pasley, 2008) and permit anonymity and/or high confidentiality of respondent identities. This is critical when surveying about sensitive topics such as sexual health, and there may be lower response bias (Ayling & Mewse, 2009; Urban & van Eeden-Moorefield, 2017).

Sample and Procedures

This study used a convenience sample consisting of 110 cisgender queer women between the ages of 19 and 60 from across the United States (see Table 3.1). This meets power needs (.90) for the analyses (G*Power). All participants reported queer attraction, ranging from only attracted to women, to having some attraction to women but with higher attraction toward men. The majority of the sample were White, followed by Hispanic/Latina, and Asian American individuals. Additionally, the sample was highly educated: over a third of participants earned a Master's or Doctoral degree (e.g., PhD, MD) and almost half of participants reported making over \$75,000 a year.

Participants were recruited using Facebook posts on the research teams' personal accounts (Appendix A; Gelinias et al., 2017). Using social media to recruit participants has become a widely used recruitment strategy due to researchers' ability to access difficult to recruit populations (e.g., sexual minorities; Urban & van Eeden-Moorefield, 2017). The post invited

people to participate in the study, provided a link to the informed consent (Appendix B) and survey (Appendix C), and also asked viewers to share the post to their own pages (i.e., snowball sampling). Those interested, clicked the link listed on the recruitment announcement and were directed to the informed consent and beginning of the survey. Participants took the survey and in the thank you letter (Appendix D) were notified that they had the opportunity to be entered into a lottery, to receive a \$25 gift card for their participation by providing their email on an unlinked separate page (Appendix E). Only one survey per IP address was allowed to ensure independence of responses (Birnbaum, 2004).

Measures

The survey asked participants about their feelings of sexual health communication self-efficacy, safe sex behaviors they have engaged in within the past 12 months, experiences of heteronormativity, and experiences of comprehensive sexual health over the last 12 months. Often times, sexual health outcomes may not appear for an extended period of time (e.g. most STIs and HIV are initially symptomless, but it is suggested that people get tested every 12 months; CDC, 2015b), and therefore, examining behaviors over a 12-month span accounts for that. Participants were asked to report their demographic information. Sample questions included participant age, race, ethnicity, and number of sexual partners in the last 12 months. Importantly, scores were coded such that higher scores indicated more positive/healthier comprehensive sexual health outcomes. This was to ensure consistency across the latent measure and also highlights positive indicators of sexuality as opposed to negative. Therefore, heteronormativity, anxiety, depression, sexual functioning (due to originally being a dysfunction scale) and STI diagnoses were scored so that higher scores meant better sexual health (or lower levels of these

items). For example, anxiety was reverse scores so that higher scores indicated lower levels of anxiety, which is indicative of better comprehensive sexual health (See Table 3.2).

Sexual communication self-efficacy. Sexual communication self-efficacy was measured using a revised version of the Quinn-Nilas and colleagues (2016) sexual communication self-efficacy scale. This scale measures self-efficacy of sexual communication. It was originally intended to measure sexual communication self-efficacy in adolescents, but was adapted for use with adult queer women. This revised 15-item scale asked participants to rate their confidence in their ability to engage in 15 conversations with a sexual partner and was measured on a 4-point Likert scale ranging from 1= *very difficult* to 4= *very easy*. Conversation topics (i.e., questions) include: “Ask how many partners they have had?” and “Suggest a new sexual activity (e.g. a new sexual position).” Scores were summed and higher scores indicated higher sexual communication self-efficacy.

Safe sex behavior. Safe sex behavior was measured using a modified version of the Safe Sex Behavior Questionnaire (DiIorio, 2009) which measured participant use of safe sex behaviors. This 8-item scale was revised to only questions that were specific to sexual behaviors and omitted questions related to substance abuse and sexual orientation. It was measured on a 4-point Likert scale ranging from 1= *never* to 4= *always*. Sample questions included “I insist on condom use when I have sexual intercourse,” and “I ask my potential sexual partners about their sexual history.” Scores were summed and higher scores indicated more safe sex behavior.

Heteronormativity. Heteronormativity was measured using Habarth’s (2014) Heteronormative Attitudes and Beliefs scale. This measure consisted of the Essential Sex and Gender Subscale and the Normative Behavior Subscale within the larger scale. This 16-item scale measured heteronormative attitudes and beliefs that individuals possess using a 7-point

Likert Scale (*1= Strongly Disagree, 7= Strongly Agree*). Sample questions include: “There are only two sexes: male and female.” Scores were summed and higher scores indicated lower heteronormative attitudes and beliefs.

Comprehensive sexual health. Comprehensive sexual health was a latent construct that was measured using seven observed variables: anxiety, depression, perceived physical sexual health, safety, sexual functioning, sexual satisfaction/pleasure, and STIs/HIV. Measures for this construct were based off of the WHO’s (2019) definition of sexual health.

Anxiety. Anxiety was measured using a 3-item author created scale (modeled after Janda & O’Grady’s, 1980, Sex Anxiety Inventory). This measured anxiety about sexuality and sexual experiences. Questions were measured on a 7-point Likert scale (*1= Untrue of me, 7= Very true of me*). Sample questions included “I generally felt anxious about sex with other people.” Scores are summed and higher scores indicated less sex related anxiety.

Depression. Depression was measured using a modified version of Radloff’s (1977) 12-item CESD-R scale, which measured depressive symptoms in the general population. This 10-item scale was measured using a 4-point Likert Scale (*1= rarely or none of the time; less than 1 day, 4= most or all of the time; 5-7 days*). Participants were asked to select the number of times they felt or behaved in the last week and sample questions included “I was bothered by things that usually do not bother me.” Scores were summed and higher scores indicated lower levels of depression.

Perceived physical sexual health. Perceived physical sexual health was measured using an author created global measure which asked, “To what extent do you feel you are physically healthy enough to have sex?” This question was measured on a 4-point Likert Scale (*1= Not at all healthy, 4=Very healthy*).

Safety. Safety was measured using an author created global measure which asked participants to “Think about the last time you engaged in sex with a partner. How safe did you feel?” The item was scored using a 5-point Likert Scale (*1 = Not safe at all, 5 = Very safe*).

Sexual functioning. Sexual functioning was measured using a modified version (5-item scale) of the Female Sexual Function Index (Rosen, 2000), which assesses common domains of female sexual functioning. Desire, arousal, lubrication, orgasm, and pain are the domains of sexual functioning that were measured. Sample questions include “How often did you find it difficult to be aroused” (*1 = never, 7 = always*). Responses were measured on a 7-point Likert scale; scores were summed and higher scores indicated better sexual functioning.

Sexual satisfaction/pleasure. Sexual satisfaction/pleasure was measured using the 6-item modified version of Rosen et al., (2004) Male Sexual Health Questionnaire. This scale was modified so that it was applicable to women. This scale assessed sexual satisfaction. Sample questions were “How satisfied are you with the overall sexual relationships you have?” Responses were measured on a 5-point Likert scale (*1 = Not at all satisfied, 5 = Very satisfied*). Scores were summed and higher scores indicated higher sexual satisfaction.

STI/HIV. STI/HIV was measured using an author created questionnaire which asked about respondent’s experiences with STI diagnoses. Respondents were asked to fill in how many times they had been tested for STIs and HIV in the last year. They were also asked to fill in the number of times they had Chlamydia, Gonorrhea, and/or Syphilis in the last 12 months. A single-item measure was used to ask if participants had herpes (because it is a treatable STI and therefore, cannot be acquired multiple times). The question asked: Do you have herpes? Answers included “*yes, no, not sure, prefer not to answer*”. A single-item measure was used to ask if they had HIV (because this is a treatable STI and therefore, cannot be acquired multiple times). The

question asked: Do you have HIV? Answers included “yes, no, not sure, prefer not to answer.”

No women in this sample had HIV diagnoses and therefore, questions about HIV were excluded from analysis. Since herpes can only be acquired once, scores were recoded so that “yes” = 1 and no = 0. Number of STI diagnoses were summed and reverse scored so that higher scores indicated better sexual health (i.e., lower STI diagnoses).

Data Analysis Plan

Data were imported into SPSS where cleaning and preliminary analyses (e.g., assessment of normality, reliability, and missingness) occurred. Data were missing completely at random (i.e., less than 20% of data per variable; Dong & Peng, 2013; Schumacker & Lomax, 2010). Missing data was replaced using multiple imputation (MI) with five estimation rounds conducted to ensure reliable estimates. MI is commonly used to account for missing data because it is able to reliably estimate larger percentages of missing data with precise and efficient estimates (Madley-Dowd, Hughes, Tilling, & Heron, 2019). Correlations were conducted to examine variable relationships (See Table 3.3), which largely were as expected.

Next, a confirmatory factor analysis (CFA) of the latent construct (comprehensive sexual health) was run to assess that the observed measures accurately measured the latent construct (Schumacker & Lomax, 2010). Model fit was assessed here and across all other models using several indices: Chi Square (χ^2) test, Comparative Fit Index (CFI), Goodness of Fit Indices (GFI), and Root Mean Square Error of Approximation (RMSEA; Schumacker & Lomax, 2010).

The full moderated-mediating model was tested in AMOS (Arbuckle, 2013) using ML estimation with a mixture of observed and latent variables (Schumacker & Lomax, 2010). ML estimation provides unbiased and strong parameter estimates (Lei & Wu, 2012). First, one thousand bootstraps were used to test the base mediation model (Cheong & MacKinnon, 2012),

which means that random subsamples of safe sex behaviors were estimated 1,000 times to ensure that mediation is present (Cheong & MacKinnon, 2012). Bootstrapping has been used more than other types of resampling methods and produces strong confidence intervals.

A median split was used to determine groups that had high levels of internalized heteronormativity vs. low levels of internalized heteronormativity. Moderation of the mediation model was tested using multi-group analysis in AMOS (Arbuckle, 2013), comparing constrained (i.e., theoretically based models) and unconstrained models (i.e., exploratory models; Byrne, 2010; Qureshi & Compeau, 2009; Savalei & Kolenikov, 2008).

Results

Preliminary Results

Correlations between demographic variables (e.g., age, income) and endogenous variables were used to identify potential controls for use in the model. Participant age was significantly correlated with feelings of safety ($r(108) = .20, p < .05$). Participant income was significantly related to depression ($r(108) = .32, p < .05$). Finally, having insurance was significantly related to perceived sexual health ($r(108) = -.25, p < .05$), depression ($r(108) = .36, p < .05$), and sexual satisfaction ($r(108) = .33, p < .05$). When controls were added to the model, age ($p = .94$) and income ($p = .75$) were not significantly related to comprehensive sexual health outcomes. However, insurance was significantly related to comprehensive sexual health outcomes and therefore, was kept in the final model as a control ($p < .05$). Results from the CFA suggested strong model fit for the latent variable (See Chapter 2).

Hypothesized Model Testing

The base model was a mediation model that assessed the direct relationship between communication self-efficacy and comprehensive sexual health and the indirect one on

comprehensive sexual health through safe sex behaviors. Model fit was strong, $\chi^2 (31, N = 110) = 36.03, p = .25, CFI = 0.97, GFI = .94, RMSEA = .04$, and accounted for 44% of the variance in comprehensive sexual health (see Table 3.4; Figure 3.1). Results show a strong positive relationship between communication self-efficacy and comprehensive sexual health; when sexual communication self-efficacy increases, comprehensive sexual health also increases. However, indirect effects were not significant in spite of the strong model fit. This was expected though given the model was hypothesized to be moderated.

Next, moderation of the model (i.e., high vs. low internalized heteronormativity) was tested and results suggested moderation was present at the model level. Importantly, the model for queer women with low internalized heteronormativity accounted for 67% of the variance in comprehensive sexual health ($R^2=.67$; Figure 3.2). In the model for queer women with high internalized heteronormativity, sexual communication self-efficacy only accounted for 43% of the variance in comprehensive sexual health outcomes ($R^2=.43$), which is less than the base mediation model (Figure 3.3).

First, we tested the direct link between sexual communication self-efficacy and comprehensive sexual health for moderation using The Stats Tool Package excel file (Gaskin, 2012). This link was significantly different between those with high and low heteronormativity (i.e., $\chi^2 (63, N = 110) = 98.45 > 96.35$ which was the 95% CI threshold). Specifically, the link between sexual communication self-efficacy and comprehensive sexual health outcomes was significantly stronger for queer women who had low levels of internalized heteronormativity compared to queer women with high levels of internalized heteronormativity (see Figure 3.2). Upon further examination, we noticed the links between sexual communication self-efficacy and safe sex behaviors was not significant for either group; thus, indirect effects remained

insignificant regardless of the level of heteronormativity and this runs counter to our hypothesized model (i.e., $\chi^2 (63, N = 110) = 93.04 < 95.22$ which is the 90% CI threshold). A difference in parameter estimates for the link between safe sex behavior and comprehensive sexual health outcomes also was present, so we tested for moderation of this link. Results from this confirmed this link also was not moderated (i.e., $\chi^2 (63, N = 110) = 92.73 < 95.22$ which is the 90% CI threshold). It appears the magnitude of difference between groups for the direct relationship was so strong that it made the results for model level moderation appear significant when only one link was moderated. Stated differently, although model level moderation was statistically present, it appears that it may not be meaningfully present. Nonetheless, this is an important finding that is discussed below.

Discussion

This study, grounded in the DoH framework, sought to understand how heteronormativity influences the direct and indirect links between sexual communication self-efficacy, safe sex behaviors, and comprehensive sexual health outcomes. Notably, this study was one of the first to use a comprehensive measurement of sexual health as opposed to studies (e.g., Painter et al., 2012) that rely on single indicators of any of the three individual domains of sexual health (i.e., physical, mental, social; WHO, 2019). Secondly, it did so with a focus on queer women, a group whose sexual health is not well understood in spite of being a group at particular risk to experience health disparities (Marazzo et al., 2005). Results partially supported our hypothesized moderated mediation model, although not entirely as expected. Specifically, the results of this study suggested communication self-efficacy played more of a direct role in explaining variation in comprehensive sexual health rather than an indirect role through engagement in safe sex behaviors. Additionally, the link between sexual communication self-

efficacy and comprehensive sexual health, although significant for both groups, was significantly stronger for queer women with low internalized heteronormativity than for those who had high internalized heteronormativity. In other words, queer women who had low internalized heteronormativity and high sexual communication self-efficacy were more likely to have higher comprehensive sexual health. For queer women, with high internalized heteronormativity, the positive relationship between sexual communication self-efficacy and comprehensive sexual health outcomes was not as strong.

As hypothesized, sexual communication self-efficacy significantly predicted comprehensive sexual health outcomes. This makes sense because it is well established within the literature that communication between partners has been found to foster closeness and emotional intimacy within romantic relationships, ultimately enhancing relationship satisfaction (Yoo, Bartle-Haring, Day, and Gangamma, 2013). Additionally, sexual communication when compared to general communication, has been found to predict sexual satisfaction, which is an important indicator of comprehensive sexual health (Montesi, Fauber, Gordon, and Heimberg, 2010). Using surveys, Montesi and colleagues (2010) examined how general communication and sexual communication contributed to sexual and relationship satisfaction. They found that sexual communication was very important for sexual satisfaction, and that general communication only impacted general relationship satisfaction. Thus, supporting the strong predictive relationship of sexual communication self-efficacy and comprehensive sexual health outcomes.

However, results did not support the hypothesized indirect relationship of sexual communication self-efficacy and comprehensive sexual health outcomes through safe sex behaviors. First, the previous research that suggested safe sex behaviors mediate the relationship between sexual communication self-efficacy and sexual health outcomes has largely focused on heterosexual

samples (e.g., Holland & French, 2012) or men who have sex with other men (MSM; Lapinski, Braz, and Maloney, 2010) overlooking queer women's unique sexual health experiences within the context of heteronormativity. When we consider queer women, research suggests an interaction between heteronormativity and safe sex behaviors (e.g., women with high levels of internalized heteronormativity may not use safe sex behaviors due to misinformation about sexual risk; Marazzo et al., 2005), thus, leading us to hypothesize a moderated mediation model. Therefore, it is not surprising that mediation of the base model was not significant for this specific group. As researchers, it is important to understand how these sexual health processes occur within the larger heteronormative context for different intersections to truly begin to understand nuances of comprehensive sexual health outcomes across diverse populations (Santos, Williams, Rodriguez, and Ornelas, 2017).

That being said, results partially supported our hypothesis that heteronormativity would completely moderate the mediation model. The direct relationship between sexual communication self-efficacy and comprehensive sexual health outcomes was significantly stronger for queer women with low internalized heteronormativity when compared to queer women with high internalized heteronormativity. This is in line with previous research that suggests queer women who have low internalized heteronormativity would ascribe less to the stigma perpetuated by heteronormative culture (i.e., that women should not be sexual and homophobia). For example, perhaps queer women with high internalized heteronormativity have adopted intrusive thoughts that hinder their ability to communicate with a partner (Lewis, Derlega, Clarke, & Kuang, 2006). Lewis and colleagues (2006) examined how lesbian women who had high stigma consciousness and social constraints (which heteronormativity perpetuates), had intrusive thoughts, internalized homophobia, and actual physical symptoms related to

awareness of heteronormative based discrimination. Therefore, perhaps for women with high internalized heteronormativity, adding an indicator to this model that asked women about their awareness of cultural stigma would present a clearer picture of the relationship between communication self-efficacy and comprehensive sexual health.

Yet, even though the link between sexual communication self-efficacy and comprehensive sexual health was significantly stronger for women with low internalized heteronormativity, the link still remained significant across both groups. Previous research suggests that queer women have strong sexual communication leading to better sexual health outcomes (Frederick, John, Garcia, & Lloyd, 2018). Frederick and colleagues (2017) examined orgasm frequency among gay, lesbian, bisexual and heterosexual men and women. They found that queer women had more orgasms than heterosexual women. Importantly, they found that women who had more orgasms were more likely to communicate about their sexual preferences and praise their partner for sexual actus. Therefore, perhaps sexual communication is a strength of queer women. Since there are two women involved, the gendered communication that would be present in a different gender sexual encounter is not present (D'Emilio & Freedman, 2012) potentially promoting more open communication. It is important to note that this information is specific to women who have sex with women, and in this study we examined women who are attracted to other women. Thus, this may not fully explain what is occurring in our sample, but is a theory that would be applicable. Therefore, even though heteronormativity may reduce the strength of the link between sexual communication self-efficacy and comprehensive sexual health outcomes, it is still somewhat strong and significant for queer women across both models.

Finally, regardless of level of internalized heteronormativity, the indirect relationship between sexual communication self-efficacy, safe sex behaviors, and comprehensive sexual

health outcomes was not significant. In line with previous research, perhaps heteronormative scripts suggesting that queer women are not at risk for negative sexual health outcomes (i.e., STIs, unintended pregnancy; Marazzo et al., 2005) was so strong that even women who had high sexual communication self-efficacy did not discuss or engage in safe sex behaviors. Using qualitative interviews, Santos and colleagues (2017) examined young Latina queer women's sexual health. They found that women perceived their sexual health was largely shaped by cultural context (e.g., a multiple minority status based on sexual identity, ethnicity, and gender). Within this context, they reported that their sex education was largely heteronormative (i.e., discussed sex in the context of two heterosexual people in love), and these women often found themselves without information on risk and protection for queer women. Additionally, women reported perceptions of less risk when engaging in sexual behavior with a cisgender female partner when compared to cisgender male partner. Therefore, this lack of risk perception may completely mitigate queer women's use of safe sex behaviors, suggesting no indirect effect.

Taken together, sexual health processes must be examined with cultural context in mind. The indirect effect of sexual communication self-efficacy, safe sex behaviors, and comprehensive sexual health outcomes are well supported in the literature (e.g., Donne, Hoeks, & Jansen, 2017). Although this relationship may exist for some populations, it does not exist for all. Specifically, for queer women, sexual communication self-efficacy may be more important for comprehensive sexual health outcomes, because there are such large misconceptions about queer women and sexual risk (Baptiste-Roberts, et al., 2017). Additionally, the strength of the predictive relationship of sexual communication self-efficacy and safe sex behaviors varies based on women's internalization of heteronormativity. Therefore, as we begin to parse what factors contribute to comprehensive sexual health outcomes for diverse groups of people, we

must also take into consideration cultural context and its influence on individual and interpersonal processes.

Limitations

This study but be considered within the bounds of its limitations. The first major limitation of this study is that the sample lacked diversity. Specifically, the sample was largely White, highly educated, and made over \$75,000. Therefore, these results cannot be generalized to more diverse populations. This is a shortcoming of sampling through social media friend networks, because most people are likely to be friends with individuals who are similar to them (Naruchitparames, Gunes, & Louis, 2011). To recruit more diverse samples for health research, the NIH (2020) suggests targeting survey recruitment to specific populations on Facebook. Thus, future research should consider ways to ensure diversity across their samples. By employing this model with more diverse populations, we can understand how these sexual health processes function across divers intersections. Additionally, this study utilized queer attraction rather than queer identity or behavior (Vrangalova & Savin-Williams, 2012). This was to be inclusive of the broad definition of queer. However, same gender attraction does not necessarily mean that someone will engage in sexual behavior with someone of the same gender, and therefore, it poses challenges to measuring physical health outcomes. Therefore, it would be beneficial to use this model with women who identify as queer as well as women who have sex with other women, regardless of their identities.

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Table 3.1

Participant Demographic Characteristics

Variable	Percent
Race	
White	90.90%
Hispanic/Latina	6.40%
East Asian/ Asian American	2.70%
Black/ African American	1.80%
South Asian/ Indian American	1.80%
Hawaiian/ Pacific Islander	<1.00%
Middle Eastern/ Arab American	<1.00%
Native American/ Alaska Native	<1.00%
Education	
High School	5.50%
Some College	16.40%
Associate's Degree	6.40%
Bachelor's Degree	31.80%
Master's Degree	25.50%
PhD, MD, DO, or advanced graduate work	13.60%
Other	<1.00%
Income	
< \$25,000	10.90%
\$25,000-\$49,999	20.00%
\$50,000-\$74,999	20.90%
\$75,000-\$99,999	16.40%
\$100,000-124,999	14.50%
> \$125,000	17.30%
Attraction	
Mostly Males	64.5%
Equal Females & Males	13.60%
Mostly Females	10.90%
Only Females	8.20%
Not sure	2.70%
Health Insurance	
Yes	94.50%
No	5.50%

Table 3.2

Measurement Descriptive Statistics

Measure	Minimum	Maximum	<i>M(SD)</i>	α
SCSE	15	60	46.77(9.31)	.92
SSB	8	30	18.14(4.66)	.64
Het*	39	112	93.60(15.75)	.91
Anx*	3	18	17.46(4.11)	.73
Dep*	14	39	29.36(6.76)	.89
PSH	1	4	3.65(.62)	---
Safe	2	5	4.80 (.51)	---
SFW*	9	34	23.35(6.05)	.83
SexSat	6	30	19.75(7.04)	.94
STI*	0	6	5.71(.89)	.81

Note. *Scales were recoded so that higher scores indicate better sexual health.

SCSE= sexual communication self-efficacy, SSB= safe sex behaviors, Het= heteronormativity, Anx= Anxiety, Dep= Depression, PSH= perceived physical sexual health, safe= safety, SFW= sexual functioning, SexSat= sexual satisfaction, STI= Sexually transmitted infections

Table 3.3

Correlation of Variables

Measure	SCSE	SSB	Het	Anx	Dep	PSH	Safe	SFW	SexSat	STI
SCSE	--									
SSB	-.01	--								
Het [^]	.03	-.02	--							
Anx [^]	.38**	-.19	.65	--						
Dep [^]	.13	-.03	-.08	.42**	--					
PSH	.10	-.06	.09	.40**	.04	--				
Safe	.43**	-.08	-.07	.27**	.17	.27**	--			
SFW [^]	.32**	-.13	.14	.46**	.21*	.31**	-.05	--		
SexSat	.49**	-.14	.21	.53**	.38	.33**	.35**	.53**	--	
STI [^]	-.01	.11	-.05	-.03	.10	-.01	.02	-.08	.01	--

Note. * $p < .05$, ** $p < .001$

[^] Scales were recoded so that higher scores indicate better sexual health.

SCSE= sexual communication self-efficacy, SSB= safe sex behaviors, Het= heteronormativity, Anx= Anxiety, Dep= Depression, PSH= perceived physical sexual health, safe= safety, SFW= sexual functioning, SexSat= sexual satisfaction, STI= Sexually transmitted infections

Table 3.4.

Unstandardized estimates, standardized estimates, and standard errors of the based mediation model, low heteronormativity model, and high heteronormativity model.

<u>Paths</u>	<u>Base Model</u>			<u>Low Heteronormativity</u>			<u>High Heteronormativity</u>		
	Un.	Stand.	S.E.	Un.	Stand.	S.E.	Un.	Stand.	S.E.
SSB ← CSE	-.00	-.00	.05	.04	.07	.07	-.04	-.07	.06
Compsex ← SSB	-.20	-.16	.10	-.23	-.186	.12	-.33*	-.28*	.03
Compsex ← CSE	.37*	.60*	.06	.52*	.81*	.06	.25*	.44*	.08
Insur ← CSE	-5.7*	-.23*	2.13	-.62	-.02	2.55	-8.67*	-.381*	2.96

Note. * indicates $p < .05$

Un. = Unstandardized, Stand. = Standardized

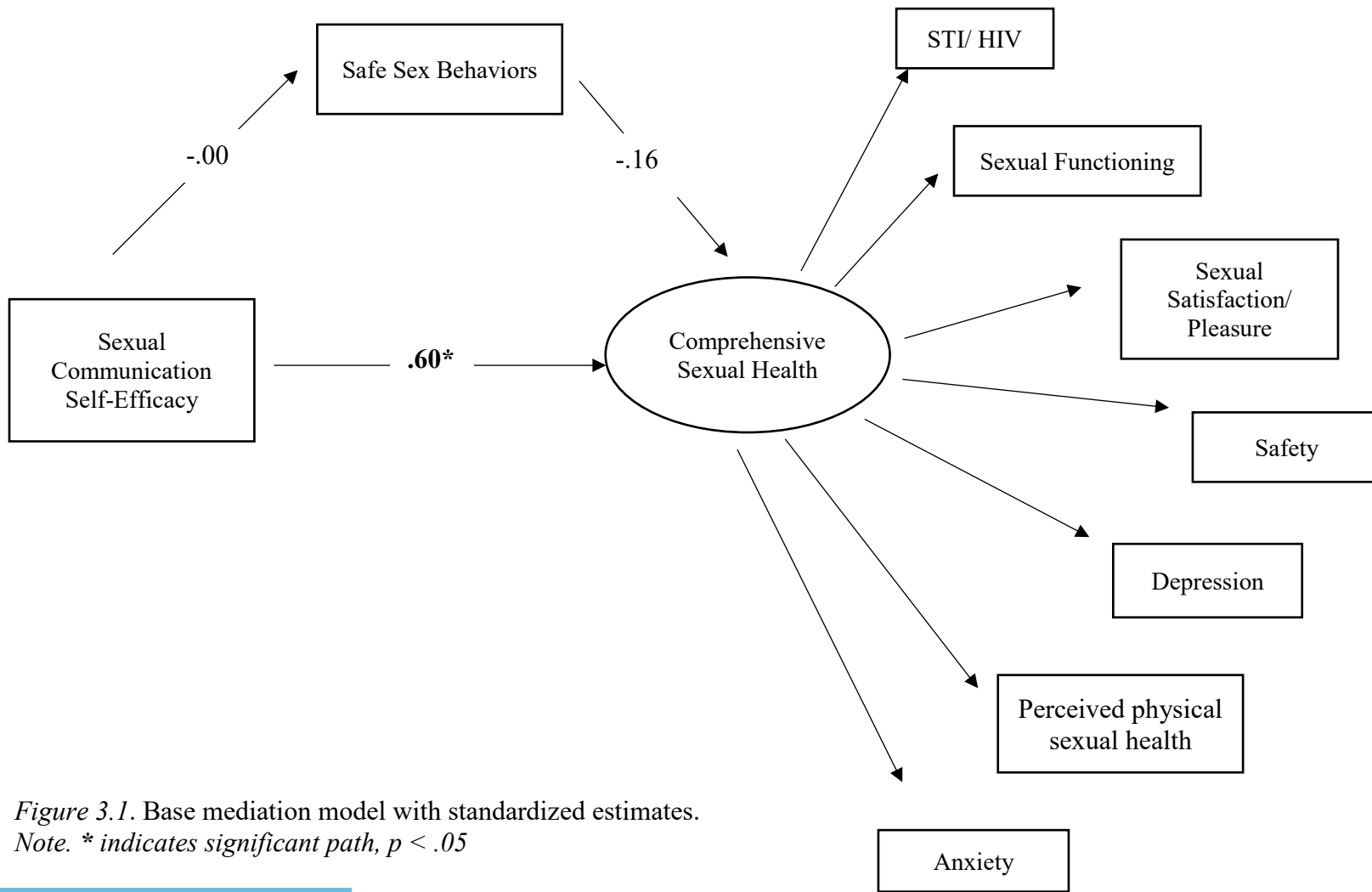


Figure 3.1. Base mediation model with standardized estimates.
 Note. * indicates significant path, $p < .05$

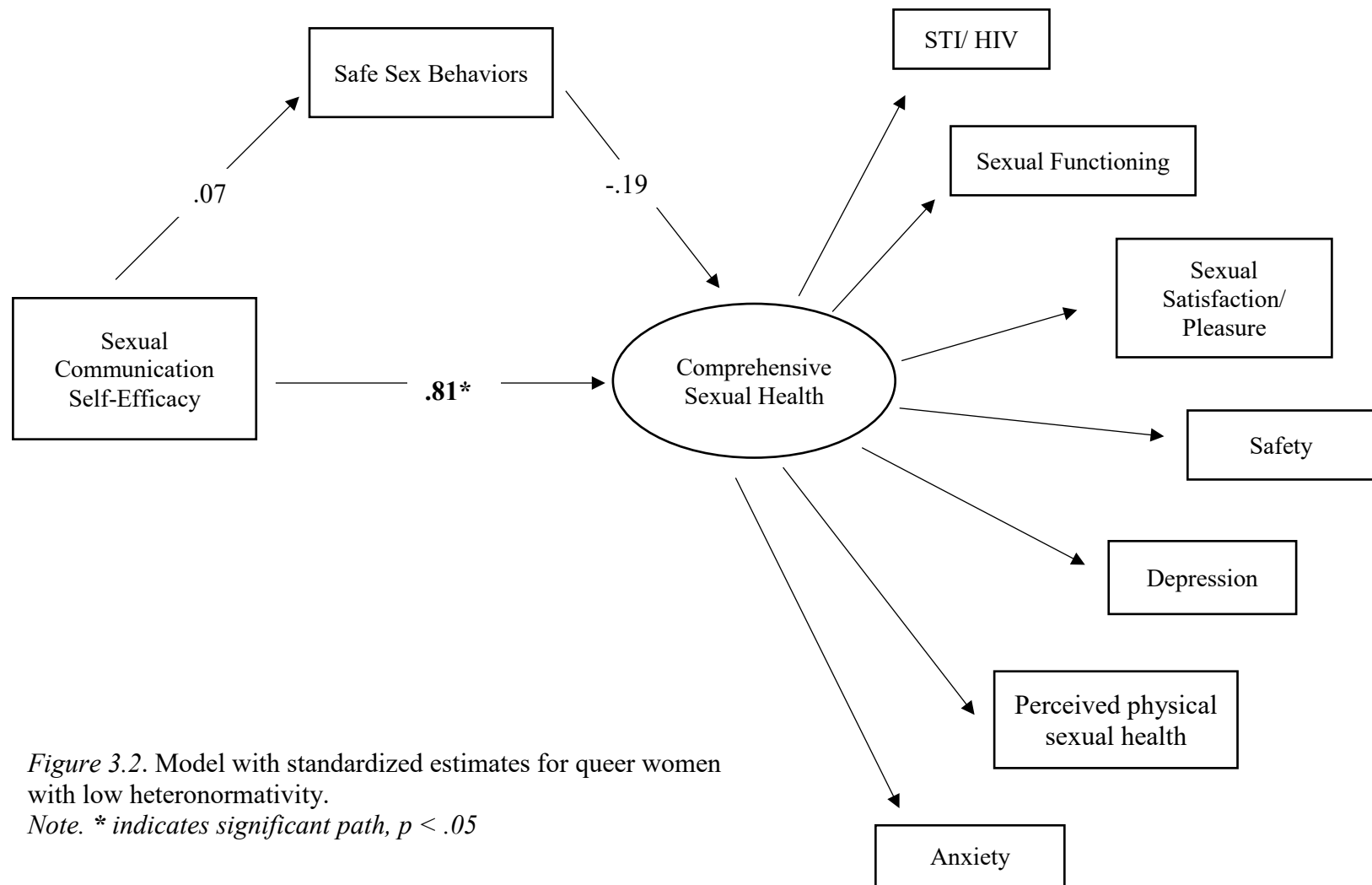


Figure 3.2. Model with standardized estimates for queer women with low heteronormativity.
 Note. * indicates significant path, $p < .05$

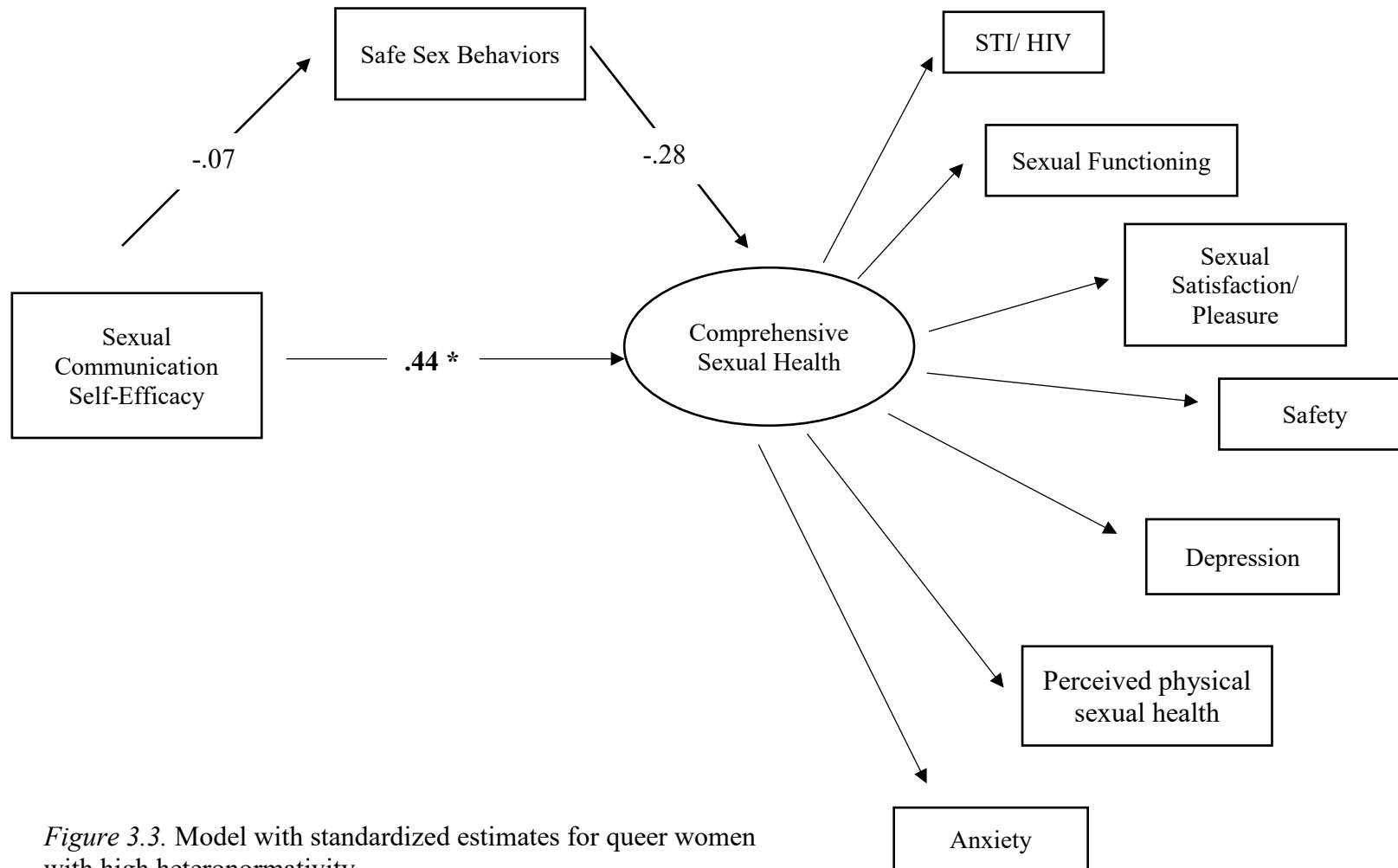


Figure 3.3. Model with standardized estimates for queer women with high heteronormativity.

Note. * indicates significant path, $p < .05$

CHAPTER 4: HETERONORMATIVITY, SEXUAL HEALTH COMMUNICATION, AND COMPREHENSIVE SEXUAL HEALTH IN HETEROSEXUAL WOMEN

Sexual health has been a public health concern in recent decades (ODPHP, 2019a). The World Health Organization (WHO; 2019) defines sexual health as “a state of physical, mental, and social well-being in relation to sexuality” (ASHA, 2019, p.1). Unfortunately, disparities often exist across a range of health outcomes, including those specific to sexual health. Historically, research has frequently examined sexual health as the absence of disease (Zielinski, 2013), leading to narrow conceptualizations of sexual health and disparities (i.e., inequitable chances of being sexually healthy based on a minority identity possessed; CDC, 2017a). However, based on the WHO’s (2019) definition, sexual health spans more than disease and should be examined in a more comprehensive way (Zielinski, 2013). One such group that experiences disparities are heterosexual women. As outlined below, there appear to be sexual health disparities present for this group across the domains described by the WHO (2019) definition.

Heterosexual women, when compared to heterosexual men, often have poorer sexual health outcomes (such as higher incidence of sexually transmitted infections with more severe long-term health consequences; STIs; ODPHP, 2019a). The CDC (2019a) reported that heterosexual women accounted for 19% of new HIV diagnoses in 2017. Of those diagnoses, approximately 86% occurred from heterosexual contact. Conversely, best estimates suggest that only 19% of heterosexual male HIV diagnoses occurred through heterosexual contact (CDC, 2017). The CDC (2017) also reported 1,127,651 chlamydia diagnoses in women and 577,644 chlamydia diagnoses in men. With regard to mental health, heterosexual women are more likely than heterosexual men to experience negative mental health consequences including feelings of

depression, shame, and guilt about their sexuality after engaging in sexual behavior (Allyn, 2000). Further, heterosexual women are less likely to orgasm than heterosexual men during different-gender sexual interactions (Kinsey Institute, 2019), which has been identified as an indicator of sexual health (WHO, 2019). Research also suggests that heterosexual women report less autonomy in sexual decision making, such as condom use. Lower autonomy can make a woman feel that she is not able to express her wants in the sexual encounter (Cook-Lindsay, 2013). Thus, there is substantial risk that undermine heterosexual women's sexual health, imploring research to examine these more closely.

ODPHP (2019) suggests that health disparities, including sexual health disparities, are an outcome of larger social inequities. The Determinants of Health (DoH) framework, created by the World Health Organization, proposes that health outcomes occur from a combination of personal, social economic, and environmental factors (ODPHP, 2019). The five facets of DoH are policymaking, social factors, health services, individual behaviors, and biology and genetics. The role that social factors have on individual sexual health behavioral processes were examined in this study (ODPHP, 2019).

Social factors, or social determinants of health, are the larger cultural context in which someone exists, learns, and interacts with others (ODPHP, 2019). Social factors include cultural norms, attitudes, social support, and social interactions. One prominent social norm in the United States is heteronormativity (van Eeden-Moorefield, 2018). Heteronormativity is a socially constructed, often internalized, and perpetuated belief that privileges individuals who are heterosexual and engage in monogamous sex only in the context of legal marriage (D'Emilio & Freedman, 2012; van Eeden-Moorefield, 2018). With regard to heterosexual sexual behavior, heteronormative scripts encourage men to be sexual aggressors and sexual decision makers,

whereas, they encourage women to be sexually chaste and ambivalent (D'Emilio & Freedman, 2012). When it comes to sexual behavior, these messages often lead to gendered power imbalances, where women are thought to be subordinate to men (Hlavka, 2014). These imbalances may minimize a woman's perception of her ability to discuss her sexuality with male partners (which is an example of an individual behavioral determinant of health, ODPHP, 2019). This could potentially be due to fear of losing a potential sexual partner (Rinaldi-Miles, Quick, and LaVoie, 2014) or fear of being deemed "slutty" (i.e., a woman who is presumed to be sexually promiscuous; Armstrong, Hamilton, Armstrong & Seeley, 2014, p.104).

Importantly, the avoidance of sexual health communication has been linked to engaging in fewer safe sex behaviors during sexual intercourse (FoSE, 2012; Widman, Noar, Choukas-Bradley, & Francis, 2014), which could result in negative sexual health outcomes. Recent estimates suggest that only 56% of heterosexual women reported using a condom the first time they had sex (Kinsey Institute, 2018). Additionally, in a 4 week study conducted by the CDC (2019b), 75% of unmarried women reported never using a condom during sexual intercourse over that span of time. This could be due, in part, to heteronormative messages perpetuating gendered power imbalances (Rinaldi-Miles, Quick, & LaVoie, 2014). Using focus groups, Rinaldi-Miles and colleagues (2014) found that women were likely to follow men's requests to not use condoms due to fear of losing a potential sexual partner. Heteronormative scripts are patriarchal and often put men largely in charge of the sexual relationship (Lovejoy, 2015). Additionally, Rinaldi-Miles and colleagues (2014) found that men and women may share inaccurate sexual histories such that they align more closely with social norms (e.g., number of sexual partners), which may have sexual health consequences (e.g., women saying they have fewer sexual partners than they actually do and men saying they have more sexual partners than

they actually do to fit heteronormative scripts). Therefore, heteronormative messages may contribute to women's avoidance of sexual health communication and safe sex behaviors, which may contribute to negative sexual health outcomes.

Research suggests that one way to combat these sexual health disparities is through improving sexual health communication self-efficacy (Quinn-Nilas et al., 2016). Having high levels of sexual communication self-efficacy (i.e., believing that you are able to discuss your sexuality, Quinn-Nilas et al., 2016) has been linked to increased safe sex behaviors such as improved condom use behavior (FoSE, 2012; Widman et al., 2014) as well as better overall sexual experiences (e.g., pleasure; Jones, Robinson & Seedall, 2018). Li and Samp (2019) examined how power was related to gender, sexual communication, and condom use in heterosexual couples. Using an online survey, they found that women who had more power in their relationships were more likely to use condoms and this relationship was mediated by sexual communication. This suggests that when women felt they were able to communicate about their sexuality, more safe sex behaviors occurred. Additionally, using dyadic path analyses of survey data, Jones and colleagues (2018) found that sexual communication lead to higher orgasm frequency in women and overall higher relationship satisfaction among both genders. This further emphasizes the importance of sexual communication self-efficacy as a process to better understand comprehensive sexual health outcomes.

The Current Study

Taken together, women's internalization of heteronormative attitudes may influence their ability to discuss their sexuality with potential partners (Li & Samp, 2019; Rinaldi-Miles, et al., 2014), lowering their use of safe sex behaviors (Li & Samp, 2019; Quinn-Nilas, et al., 2016), and ultimately leading to negative comprehensive sexual health outcomes (WHO, 2019). Little

research has focused on the impact that heteronormativity has on heterosexual women's sexual communication self-efficacy and in turn their comprehensive sexual health outcomes. Therefore, the purpose of this study was to examine the links between these three factors. Specifically, the hypothesized model (see Figure 4.1) suggested a direct relationship between sexual communication self-efficacy and comprehensive sexual health outcomes (Quinn-Nilas et al., 2016; Widman, Choukas-Bradley, Helms, Golin & Prinstein, 2014). Because sexual communication is often about safe sex behaviors (Widman et al., 2014), and safe sex behaviors improve sexual health outcomes (Planned Parenthood, 2019), it was predicted that safe sex behaviors would partially mediate this relationship. Additionally, it was predicted that heteronormativity would moderate the entire model (see Figure 4.2). Women may avoid discussing their sexuality with a potential partner because heteronormativity encourages women to stay silent about their sexuality (D'Emilio & Freedman, 2012). Further, heterosexual women may accept male condom use preferences (because of heteronormative scripts), and therefore, engage in fewer safe sex behaviors leading to negative sexual health outcomes (Rinaldi-Miles et al., 2014). Finally, it was predicted that heteronormativity would moderate the direct relationship between sexual communication self-efficacy and comprehensive sexual health outcomes. Women may feel that discussing their sexuality will lead to social and relationship repercussions and therefore, may choose not to discuss her sexual health. This in turn, would lead to more negative sexual health outcomes (Cunningham, Tschann, Gurvey, Fortenberry & Ellen, 2002; D'Emilio & Freedman, 2012).

Methods

Sample

Data were collected from a convenience sample of 188 cisgender heterosexual women from across the United States who were surveyed online through Facebook (which meets power needs for the analysis, .90; G*Power). Participant ages ranged from 19 to 82 ($M = 34$, $SD = 11.14$). The overwhelming majority of the sample was Non-Hispanic White women (88.80%). Additionally, the sample was highly educated: 41.50% reported earning a bachelor's degree, followed by 28.70% reported earning a master's degree, and 12.80% reported earning an advanced graduate degree (e.g., PhD, MD, DO). Additionally, almost all participants (97.90%) reported having health insurance at the time they participated in the survey. More than half (i.e., 61.00%) of the participants made over \$75,000 a year (Table 4.1).

Procedure

The research team posted a recruitment announcement (Appendix A) to their personal Facebook pages that informed people about the online 30-minute study about sexual health. The announcement included a link to the informed consent (Appendix B) and survey (Appendix C). The announcement also asked followers to share information about the study on their own pages (i.e., snowball sampling; Gelinias et al., 2017). Recruitment through social media has become a popular strategy to identify participants because of its widespread use, ease of dissemination, and ability to reach diverse and hard to reach populations (Urban & van Eeden-Moorefield, 2018; Gelinias et al., 2017). At the end of the survey participants were given the option to participate in a raffle to receive one of 40 \$25 Amazon gift cards (Appendix D). Information for the raffle was input into an unlinked page so that participant responses remained anonymous (Appendix E).

The survey was set so that it could only be taken one time per each IP address to safeguard data independence (Birnbaum, 2004).

Measures

The survey consisted of demographic questions (e.g., age, race, ethnicity, SES) as well as those that asked participants about their sexual health communication self-efficacy, safe sex behaviors, internalized heteronormativity, and comprehensive sexual health over the last 12 months. The CDC (2017a, 2017b, 2017c) recommends that individuals get tested for STIs and HIV once every 12 months to assess their sexual health. Therefore, participants were asked to reflect on their experiences over that time span. Some scales (i.e., Heteronormativity, Anxiety, Depression, Sexual Functioning; originally a dysfunction scale, and STIs) were reverse scored so that higher scores indicated better sexual health. For example, in the heteronormativity measure, high scores indicated lower heteronormative attitudes and lower scores indicated higher heteronormative attitudes. Although this might seem counterintuitive, we wanted all higher scores to reflect a more positive dimension of the variables measured (e.g., a lower heteronormative attitude is good and related to more positive outcomes; Habarth, Holmes, Sandoval, & Balsam, 2019). Table 4.2 presents scale descriptive statistics (i.e., minimum, maximum, mean, standard deviation, and reliability).

Sexual communication self-efficacy. A revised 15-item version of the Quinn-Nilas and colleagues (2016) sexual communication self-efficacy scale was used to measure participants' perceptions of their ability to discuss their sexuality with a partner. Participants rated their perceived ability to engage in 15 conversations with a sexual partner using a 4-point Likert scale (*1 = very difficult to 4 = very easy*). Sample items included: "Tell them you would like to have

sex more often?” and “Tell them a sexual activity feels good.” Scores were summed and higher scores indicated higher sexual communication self-efficacy.

Safe sex behaviors. Due to length, DiIorio’s (2009) Safe Sex Behavior Questionnaire was modified to 8 questions and used to measure safe sex behavior. Questions that were specific to the sexual health indicators used in this study were included. Sample questions include “I stop foreplay long enough to put on a condom (or for my partner to put on a condom)” and “I ask potential partners about their sexual histories” (*1=never to 4= always*). Two questions were reverse scored. Scores were summed and higher scores indicated more safe sex behaviors.

Heteronormativity. Habarth’s (2014) Heteronormative Attitudes and Beliefs scale was used to measure heteronormativity. This scale consisted of two subscales: Essential Sex and Gender Subscale and the Normative Behavior Subscale. Together, this scale consisted of 16 items measured on a likert scale (*1= strongly disagree, 7= strongly agree*). Sample questions included: “People who say that there are only two legitimate genders are mistaken”. Eight questions were reverse scored. Items were summed.

Comprehensive sexual health. Comprehensive sexual health was measured as a latent variable using the WHO (2019) comprehensive definition of sexual health. The observed variables were anxiety, depression, perceived physical sexual health, safety, sexual functioning, sexual satisfaction/pleasure, and STIs/HIV.

Anxiety. With reference to Janda & O’Grady’s (1980) Sex Anxiety Inventory, an author created 3-item scale was used to measure sexual anxiety. “I generally feel anxious about masturbation” was a sample question and was measured using a 7-point Likert scale (*1= Not true of me at all, 7= Very true of me*). Scores were then summed. The scale was reverse coded so that higher scores indicated lower sexual anxiety.

Depression. A modified version of Radloff's (1977) 12-item CESD-R was used to measure depressive symptoms. This 10-item summed scale asked participants to indicate the number of times they felt or behaved in a certain way in the last week. Responses were measured on a 4-point Likert Scale (*1= rarely or none of the time; less than 1 day, 4= most or all of the time; 5-7 days*). An example question was: "I had trouble keeping my mind on what I was doing."

Perceived physical sexual health. Author(s) created an item to measure global perceived physical sexual health. The question asked, "To what extent do you feel you are physically healthy enough to have sex?" and used a likert scale (*1= Not at all healthy, 4=Very healthy*).

Safety. Author(s) created an item to measure global perceived safety in sexual encounters. The question asked "Think about the last time you engaged in sex with a partner. How safe did you feel?" (*1= Not safe at all, 5=Very safe*).

Sexual functioning. A 5-item modified version of Rosen's (2000) Female Sexual Function Index was used to assess female sexual functioning (i.e., desire, arousal, lubrication, orgasm, and pain). A sample question was "How often did you find it difficult to have an orgasm when you wanted to?" (*1= never, 7= always*).

Sexual Satisfaction/Pleasure. A version of the summed Male Sexual Health Questionnaire (Rosen et al., 2004) was modified to apply to women and was used to measure experiences of sexual satisfaction and pleasure. Questions were asked without assuming the gender of the participant. "How satisfied are you with the quality of the sex life you have?" was an example question and was measured on a 5-point Likert scale (*1= Not at all satisfied, 5= Very satisfied*). Higher scores indicated more sexual satisfaction and pleasure.

STIs/HIV. Author created questions were used to assess participant experiences with STIs and HIV. Questions assessed frequency of STI and HIV testing and number of Chlamydia, Gonorrhea, and/or Syphilis diagnoses over the last year. Because herpes and HIV are treatable chronic conditions, two single-item measures were used to identify if participants had herpes or HIV. The questions asked, “Do you have herpes?” and “Do you have HIV?” Answers included “yes, no, not sure, prefer not to answer.” In this sample, no women responded that they were HIV positive and therefore, HIV was excluded from scale combination. For score combination, herpes was recoded so that so that yes=1 and no =0. Then all STI scores were combined and scores ranged from three to six.

Data Analysis Plan

Data were imported into SPSS for cleaning and assessment of normality, reliability, and missingness. Scores were summed and preliminary relationships between variables were analyzed and were as expected (see Table 4.3). Once cleaned, data were imported into AMOS for analysis and model testing was conducted sequentially. First, to ensure fit of the measurement model (i.e., the observed variables used to measure the latent construct of comprehensive sexual health outcomes), a confirmatory factor analysis (CFA) was conducted using maximum likelihood estimation (Schumacker & Lomax, 2010). Model fit was assessed using Chi Square (χ^2) test, RMSEA, CFI, and SRMR (Schumacker & Lomax, 2010).

AMOS was used to test the hypothesized moderated-mediation model (Arbuckle, 2013) using ML estimation because of its ability to predict robust parameters for a mix of observed and latent variables (Schumacker & Lomax, 2010). To test for mediation, 1,000 bootstraps were run. Bootstrapping takes random subsamples and estimates them to see if they are likely present in the model (Cheong & MacKinnon, 2012). To test for moderation of the model, first a median

split was used to identify groups that had high internalized heteronormativity and low internalized heteronormativity. Then a multi-group analysis was run in AMOS (Arbuckle, 2013) which compared both the constrained (or theoretically predicted) and unconstrained (estimated models).

Results

Preliminary Results

Correlations were used to assess the need to include controls in the model. A number of demographic variables were correlated with at least one observed endogenous variable. Specifically, education was correlated with sexual functioning ($r(186) = -.18, p < .05$), income was significantly correlated with STIs ($r(186) = .18, p < .05$), depression ($r(186) = .16, p < .05$), anxiety ($r(186) = .24, p < .05$), and feelings of safety ($r(186) = .18, p < .05$). Finally, health insurance was related to sexual functioning ($r(186) = .18, p < .05$). However, when added to the model, no controls were significant. Therefore, they were all dropped from the model.

Missing data analysis was conducted using SPSS's Missing Value analysis. No variable had more than 20% missing responses, suggesting responses were missing completely at random (Dong & Peng, 2013). Missing data were replaced using five estimation rounds of multiple imputation (MI) in SPSS. MI is reliable with replacing missing data of varying sizes and is very efficient (Madley-Dowd, Hughes, Tilling, & Heron, 2019). A CFA was conducted to validate measurement of the latent construct of sexual health. Model fit was strong and all parameter estimates were significant except STI diagnoses (See Chapter 2). As stated in the measurement section, scores were coded so that higher scores indicated higher sexual health. This was to ensure consistency within the latent measurement.

Hypothesized Model Testing

First, the base mediation model was tested. This model tested the direct relationship between sexual communication self-efficacy and comprehensive sexual health outcomes as well as the indirect relationship through safe sex behaviors. Results suggested the model had good fit, $\chi^2(21, N=188)=27.39, p = .16, CFI = 0.98, GFI = .97, RMSEA = .04$, and accounted for 65% of the variation in comprehensive sexual health. All parameter estimates were significant except the link between sexual communication self-efficacy and safe sex behaviors ($p = .06$, See Table 4.4, Figure 4.1). Therefore, the indirect effect was not significant for the full model. However, there was a moderately strong negative relationship between safe sex behaviors and comprehensive sexual health outcomes in this model. In other words, as safe sex behaviors increased, comprehensive sexual health outcomes decreased. That is, as women used more safe sex behaviors they experienced decreases in their comprehensive sexual health. Notably, results suggest a strong direct positive relationship between sexual communication self-efficacy and comprehensive sexual health outcomes. Thus, the base mediation model fit the data which suggested the presence of at least partial mediation might be found in the full moderated mediation model.

Therefore, using multi-group analysis, moderation of the mediation model was tested. Groups were heterosexual women with high internalized heteronormativity and heterosexual women with low internalized heteronormativity. Results suggested that moderation was present at the model level. Of additional interest, the model for women with high internalized heteronormativity only accounted for 57% of the variation in comprehensive sexual health outcomes ($R^2=.57$), which is less than the variance explained by the base mediation model.

Contrastingly, the model for women with low internalized heteronormativity accounted for 73% of the variance in comprehensive sexual health ($R^2=.73$).

Further probing of model links was conducted using The Stats Tool Package excel file (Gaskin, 2012) to identify which links demonstrated moderation. First, the direct link between sexual communication self-efficacy and comprehensive sexual health was tested, and there was not significant moderation (i.e., $\chi^2(43, N = 188) = 47.66 < 48.44$ which was the 90% CI threshold). Note, both groups demonstrated strong direct links though. Next, the link between sexual communication self-efficacy and safe sex behaviors was tested for moderation. Moderation was present with the link being significant ($p < .05$) for women who had high internalized heteronormativity (see Figure 4.2), but insignificant for women who had low internalized heteronormativity (see Figure 4.3; $\chi^2(43, N = 188) = 48.55 > 48.44$ which was the 90% CI threshold). We then tested the second part of the indirect effect pathway: the link between safe sex behaviors and comprehensive sexual health outcomes. This link was not significantly moderated, but remained significant for both groups ($\chi^2(43, N = 188) = 46.70 < 48.44$ which was the 90% CI threshold). Taken together, partial moderation of the mediation model was only present for women with high internalized heteronormativity.

Discussion

Grounded in a DoH framework, this study examined the links between sexual communication self-efficacy, safe sex behaviors, and comprehensive sexual health outcomes, within the context of heteronormativity among cisgender heterosexual women. The hypothesized model predicted that sexual communication self-efficacy would predict comprehensive sexual health, and that this link would be partially mediated by safe sex behaviors and moderated by heteronormativity. Data partially support our moderated mediation hypothesis: Partial mediation

was only present for heterosexual women with high internalized heteronormativity. In other words, the link between communication self-efficacy and comprehensive sexual health outcomes acted differently for women with high internalized heteronormativity and women with low internalized heteronormativity. However, the link between safe sex behaviors and comprehensive sexual health outcomes and the direct relationship between sexual communication self-efficacy and comprehensive sexual health outcomes did not significantly change. Therefore, although data did not completely support the hypothesized model, these findings make significant contributions to the literature. These are discussed below.

First, the direct relationship between sexual communication self-efficacy and comprehensive sexual health outcomes stayed strong, positive, and significant for heterosexual women regardless of their level of internalized heteronormativity. This is consistent with the previous research that sexual communication self-efficacy contributes to better sexual health outcomes (e.g., Widman et al., 2014). For example, Landor and Winter (2019) wanted to understand how relationship quality, comfort with sexual communication, and safe sex outcomes are related for young women in monogamous relationships. They found that relationship quality and being comfortable communicating about sex was associated to pregnancy prevention (i.e., through condom use and contraceptive use) and substance use during sexual encounters. Those who were comfortable communicating about sex with a partner took more precautions during sexual intercourse. Thus, supporting that women with high sexual communication self-efficacy have better comprehensive sexual health.

Moderation of the indirect effect partially supported our hypothesized model. Specifically, the indirect effect was only significant for heterosexual women with high internalized heteronormativity. For women with low internalized heteronormativity, this path

remained insignificant with a low parameter estimate, suggesting that this relationship did not exist for this group. Culturally, women are taught that they should not speak about sex or be sexually knowledgeable about their bodies (D'Emilio & Freedman, 2012). For example, women understanding what behaviors may lead to sexual pleasure and orgasm (e.g., through solo masturbation) may result in women being slut shamed (D'Emilio & Freedman, 2012; Haus & Thompson, 2019), perpetuating the sexual double standard that men should be sexual but women should not (Haus & Thompson, 2019). Using grounded theory methodology, Kaestle and Allen (2011) examined college student perceptions of masturbation. They asked questions about how they learned about masturbation, how they internalized social stigma and taboos related to masturbation, and how they navigated the relationship between stigma and pleasure. They found that most students believed that masturbation was more acceptable for men than women, and they were apprehensive to even discuss masturbation. Men discussed masturbation as a positive and healthy behavior, whereas women were less descriptive and positive about their experiences. This demonstrated the pervasiveness of culturally stigmatizing scripts for women and their sexuality. Thus, women with high internalized heteronormativity may not believe that they should talk about the numerous facets of sexual health (e.g., sexual pleasure, sexual history, sexual concerns; Horan, 2016; Lehmiller, et al., 2014) out of fear they may be viewed as a slut or be shamed by a partner (e.g., sexual double standard; Greene, & Faulkner 2005).

However, for heterosexual women with high internalized heteronormativity, discussing safe sex behaviors may be less threatening, and therefore, their sexual communication focuses on those. The discussion of safe sex behaviors, within heterosexual relationships, is commonly discussed in school sexuality education (Baptiste-Roberts, 2017), the media (Martino, Collins, Kanouse, Elliot, & Berry, 2005), and by parents (Widman, Choukas-Bradley, Noar, & Garrett,

2016). Therefore, heterosexual women who have high heteronormativity may still feel comfortable discussing safe sex behaviors with a partner, since that is somewhat normalized in society. For women who have low internalized heteronormativity, perhaps they do not prescribe to the cultural norms that have perpetuated shame and silence around women communicating about their sexuality. This group of women may have more self-efficacy in discussing other facets of sexual health with a partner, and therefore, indirect discussions of sexuality through safe sex behaviors does not exist.

Finally, for both models, the relationship between safe sex behaviors and comprehensive sexual health outcomes was negative and significant (i.e., safe sex behaviors decreased, comprehensive sexual health outcomes increased). These findings were not consistent with our hypothesis; however, they suggest that engaging in safe sex behaviors for heterosexual women may not lead to better comprehensive sexual health. First this could be due to error in measurement of STIs, which would be the most directly affected indicator of engaging in safe sex behaviors (e.g., CDC, 2013). If STIs were measured differently leading to a significant factor loading on comprehensive sexual health, it is possible that this relationship would change to positive. However, it is possible that these findings are a function of gendered power differentials that often occur in heterosexual sexual intercourse (Hlavka, 2014). For example, condom use negotiation can be a gendered and power-based. Men may prefer to have unprotected intercourse due to decreased sensation when using a condom (Grady, et al., 1993). So, when a woman suggests her preference to use condoms during sex her partner may encourage her not to in order to improve his sexual experience (Conley & Collins, 2006; Grady, Klepinger, Billy, & Tanfer, 1993). Women may agree to this, out of fear of losing the romantic partner in the long run (Rinaldi-Miles et al., 2014). Therefore, even though women feel that they are able to talk about

safe sex behaviors, male dominated sexual scripts override that self-efficacy. Additionally, women may now have higher feelings of anxiety, depression, and lower feelings of safety, since their preferences were ignored, resulting in lower comprehensive sexual health outcomes. Additionally, this model explained less of the variance across comprehensive sexual health than the base mediation model. This suggests that there may be other variables that influence comprehensive sexual health outcomes that were not presented in the original model for this group. Based on the previous explanation, perhaps more variance would be explained for women with high heteronormativity, if the model included partner communication and partner safe sex behavior preferences. The decision to engage in safe sex behaviors is more of a dyadic interpersonal process, and therefore, understanding both partners preferences may enhance the model.

Conclusion

Notably, the extant literature has focused almost exclusively on behavioral and individual indicators of sexual health (i.e., safe sex behaviors prevent STIs), which has overlooked how individual and cultural processes interact, which can directly predict comprehensive sexual health outcomes (Schalet, 2011). Results from the current study suggested that communication self-efficacy is the strongest predictor of comprehensive sexual health for heterosexual women and that the indirect relationship of sexual communication self-efficacy, safe sex behaviors, and comprehensive sexual health outcomes is only present in women with high internalized heteronormativity. Thus, when studying heterosexual women's comprehensive sexual health, research must consider cultural context and the impact of heteronormative gendered power differentials and shaming women's sexuality.

Limitations

Our results must be considered within the limitations of our study. First, research suggests that when discussing sex, sexual behaviors, and sexual health, participants may respond in socially desirable ways or untruthful ways to avoid disclosing potentially stigmatizing information (Schroder, Carey & Vanable, 2003). Therefore, it is important to consider the accuracy of the self-reports (Schroder et al., 2003). Using online surveys has been found to alleviate some of the limitations that are present when surveying about sexuality, because of enhanced anonymity (Schroder et al., 2003). Therefore, online survey methodology was selected for this reason. However, online surveys comes with shortcomings of their own (Lefever, Dal, & Matthaisdottir, 2007). For example, the researcher cannot confirm that participants fit the inclusion criteria to participate in the study (Lefver et al., 2007). To combat this, recruiting through social media networks (such as Facebook) can provide more assurance that participants fit search criteria. Additionally, this provides easy access to a population from which to collect data (King, O'Rourke, & DeLongis, 2014). One limitation of recruiting through social media, that was evident in this study, is the collection of homogenous samples (King et al., 2014). In theory, people from diverse backgrounds are on social media and therefore, it is a tool to access diverse samples (King et al., 2014). However, when recruiting through personal friend networks, it is likely that samples will be somewhat homogenous given people tend to be friends with people that are similar to them (Naruchitparames, Gunes, & Louis, 2011). Accordingly, it makes sense that our sample was homogenous and socially privileged (e.g., mostly White, middle-class). Additionally, our study was cross-sectional. Both of these factors combined suggest that our results must be considered within the confines of our study. However, as outlined in the discussion, enough research exists that supports our findings, which would suggest that similar

results may be seen across more diverse populations. That being said, future research should use these models with more diverse populations, to understand how sexual communication self-efficacy, safe sex behaviors, and comprehensive sexual health outcomes interact across diverse groups.

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Table 4.1

Participant Demographic Characteristics

Variable	Percent
Race	
White	88.80%
Hispanic/Latina	6.40%
East Asian/ Asian American	2.10%
Native American/ Alaska Native	1.60%
Black/ African American	1.10%
South Asian/ Indian American	1.10%
Middle Eastern/ Arab American	<1.00%
Education	
High School/GED	4.30%
Some College	7.40%
Associate's Degree	3.70%
Bachelor's Degree	41.50%
Master's Degree	28.70%
PhD, MD, DO, or advanced graduate work	12.80%
Other	1.60%
Income	
< \$25,000	5.90%
\$25,000-\$49,999	13.40%
\$50,000-\$74,999	19.80%
\$75,000-\$99,999	20.90%
\$100,000-124,999	15.50%
> \$125,000	24.60%
Attraction	
Mostly Males	30.30%
Only Males	69.70%
Health Insurance	
Yes	97.90%
No	2.10%

Table 4.2

Measurement Descriptive Statistics

Measure	Min	Max	<i>M(SD)</i>	α
SCSE	15	60	46.77 (8.80)	.91
SSB	8	32	19.13 (4.88)	.68
Het*	34	112	86.02 (17.30)	.91
Anx*	3	21	17.40 (4.06)	.69
Dep*	14	40	31.93 (5.66)	.86
PSH	1	4	3.72 (.56)	---
Safe	2	5	4.80 (.56)	---
SFW*	9	45	24.04 (5.83)	.81
SexSat	6	30	21.05 (6.78)	.94
STI*	3	6	5.89 (.53)	.79

Note. *Scales were recoded so that higher scores indicate better sexual health.

SCSE= sexual communication self-efficacy, SSB= safe sex behaviors, Het= heteronormativity, Anx= Anxiety, Dep= Depression, PSH= perceived physical sexual health, safe= safety, SFW= sexual functioning, SexSat= sexual satisfaction, STI= Sexually transmitted infections

Table 4.3

Correlations of Variables

Measure	SCSE	SSB	Het	Anx	Dep	PSH	Safe	SFW	SexSat	STI
SCSE	--									
SSB	.13	--								
Het ^	-.03	-.07	--							
Anx ^	.32**	-.26**	-.02	--						
Dep ^	.11	-.12	-.11	.27**	--					
PSH	.28**	-.23**	.06	.30*	.20**	--				
Safe	.13	-.14	-.09	.16*	.32**	.21**	--			
SFW ^	.29**	-.03	-.16**	.24**	.16*	.29**	-.09	--		
SexSat	.34**	-.18*	-.02	.22**	.31**	.18*	.42**	.40**	--	
STI ^	.11	.04	-.04	.06	.10	.10	-.06	.056	.09	--

Note. ^ Scales were recoded so that higher scores indicate better sexual health.

* $p < .05$ ** $p < .001$

SCSE= sexual communication self-efficacy, SSB= safe sex behaviors, Het= heteronormativity, Anx= Anxiety, Dep= Depression, PSH= perceived physical sexual health, safe= safety, SFW= sexual functioning, SexSat= sexual satisfaction, STI= Sexually transmitted infections

Table 4.4

Unstandardized estimates, standardized estimates, and standard errors of the base mediation model, low heteronormativity model, and high heteronormativity model.

<u>Paths</u>	<u>Base Model</u>			<u>Low Heteronormativity</u>			<u>High Heteronormativity</u>		
	Un.	Stand.	S.E.	Un.	Stand.	S.E.	Un.	Stand.	S.E.
SSB \leftarrow CSE	.08	.14	.04	.01	.03	.06	.15	.26	.06
Compsex \leftarrow SSB	-.29*	-.43*	.06	-.28*	-.36*	.08	-.41*	-.67*	.12
Compsex \leftarrow CSE	.23*	.74*	.05	.32*	.79*	.06	.20*	.56*	.06

Note. * indicates $p < .05$

Un.=Unstandardized, Stand= Standardized

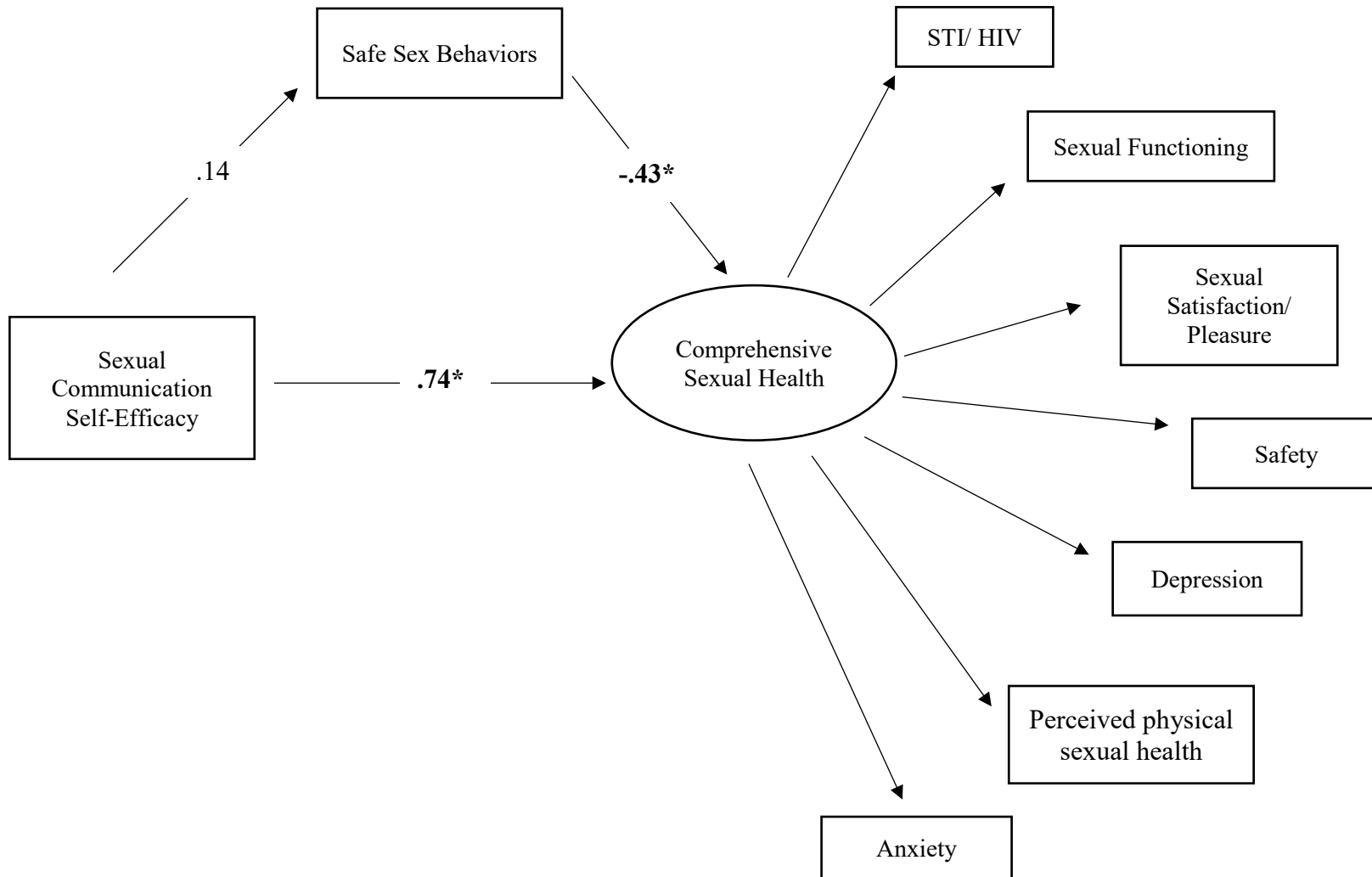


Figure 4.1. Base mediation model with parameter estimates
 * Indicates $p < .05$

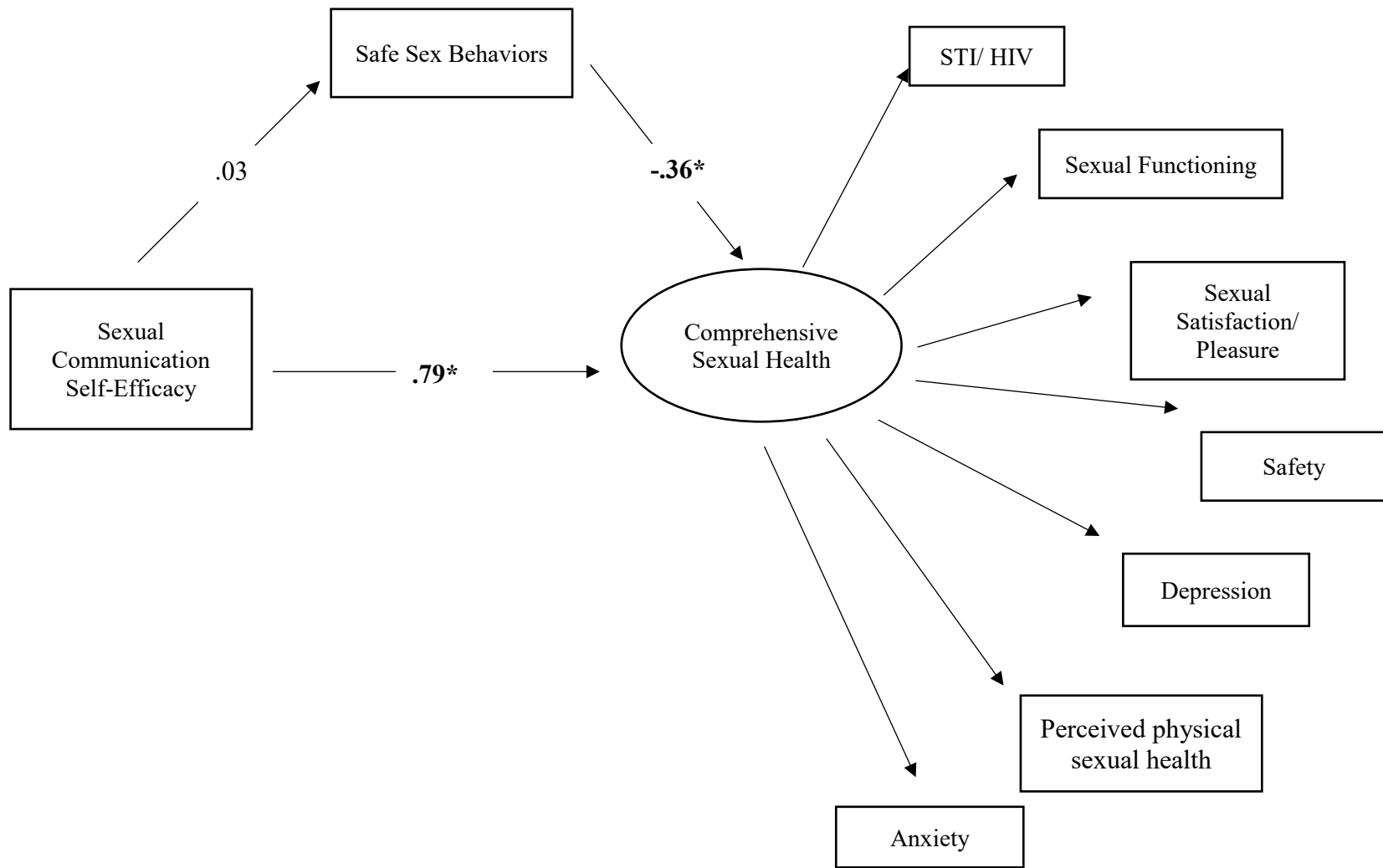


Figure 4.2. Low internalized heteronormativity model with parameter estimates
 * indicates $p < .05$

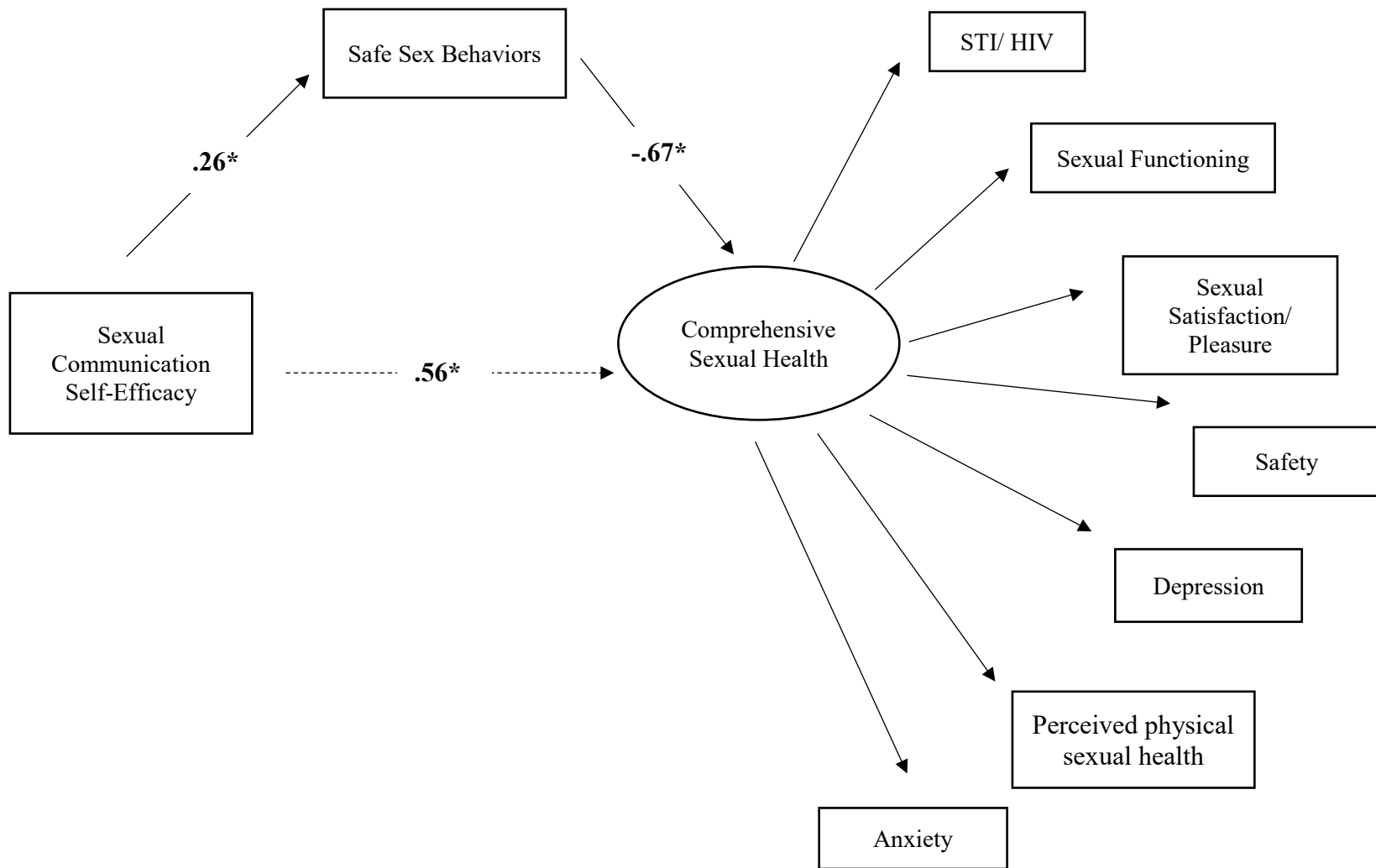


Figure 4.3. High internalized heteronormativity model with parameter estimates
 * indicates $p < .05$

CHAPTER 5: DISCUSSION

Human sexuality is shaped and understood through a series of individual behaviors, interpersonal exchanges, and social constructions-- biology, mental health, and social exchanges all contribute to human sexuality and sexual experiences (WHO, 2010). In other words, human sexuality is more than simply sexual behavior-- it encompasses an entire person interacting with others in context. Therefore, it makes sense that in order to best understand sexual health we must conceptualize (and measure) it comprehensively. This is consistent with the WHO's (2019) assertion that we should consider the individual, interpersonal, and social factors that collectively influence health and can lead to health disparities. To date, the extant literature rarely addresses these calls in any single study. Additionally, much of the extant literature minimizes sexual health to the absence of disease (CDC, 2020) and unintended pregnancy (Guttmacher, 2019). From these narrow conceptualizations of sexual health, research identified a number of health disparities that exist across these two biological domains for women (i.e., STI diagnoses, and unintended pregnancy). Importantly, although research has identified these disparities, few understand why these disparities exist outside of behavioral mechanisms.

Thus, the first aim of this study was to create and validate a measure of comprehensive sexual health grounded in the World Health Organization's (WHO; 2019) definition of sexual health. By using a comprehensive measure, rather than a single biological indicator of health (i.e., STI diagnoses), research can begin to parse apart different interpersonal and social factors that contribute to and perpetuate sexual health disparities. Therefore, the second aim of this study used this comprehensive measure of sexual health to model how cultural heteronormativity (which often shames women for their sexuality; Easton & Hardy, 2009) influences comprehensive sexual health outcomes across diverse women (i.e., queer and heterosexual

women). Results from these models suggest that sexual communication self-efficacy strongly predicts comprehensive sexual health outcomes for women, regardless of their sexual orientation. However, to some extent, heteronormativity impacts these processes potentially contributing to sexual health disparities among women.

Comprehensive Measurement of Sexual Health

The first significant contribution of this study was creating and validating a parsimonious measure of comprehensive sexual health grounded in the WHO's (2019) conceptual definition. By creating a comprehensive measure of sexual health, future research may begin to ask questions about individual, interpersonal, and social influence on comprehensive sexual health, which considers sexuality as more than biology. Specifically, future research can ask questions about the person while considering the context within which they live. By asking question in this way, research may find, processes that contribute to non-biological indicators of sexual health disparities, specific to women, such as orgasm gaps (e.g., Frederick, John, Garcia, & Lloyd, 2017) feelings of safety in consensual sexual encounters (Jozkowski & Wiersma, 2015), and sexuality specific anxiety and depression (Kalmbach, Kingsberg, & Cielsa, 2014). Along those lines, research may begin to holistically understand the role that culture plays in comprehensive sexual health outcomes across diverse groups. This dissertation explored this idea in study two and study three.

Focusing on Communication Rather than Safe Sex Behaviors

Along those lines, this program of research used the aforementioned comprehensive measure of sexual health in two models to understand how communication self-efficacy and safe sex behaviors contribute to comprehensive sexual health outcomes. Results suggested that when we consider the sexual health of the entire person (i.e., biological, mental, and social sexual

health) safe sex behaviors are not necessarily as predictive of sexual health outcomes as the extant literature suggests (e.g., Li & Samp, 2019). In fact, communication self-efficacy, which is an individual's belief about their ability to communicate about sexuality, was the strongest predictor of comprehensive sexual health outcomes for both heterosexual and queer women. By using a comprehensive measure of sexual health, we learned that safe sex behaviors may only contribute to biological indicators of sexual health, but not necessarily other domains of sexual health. Specifically, being able to communicate may not directly prevent STIs, because STIs are a biological indicator of sexual health (CDC, 2020). But it may be able to reduce anxiety and depression related to sexuality (e.g., Brassard, Dupuy, Bergeron, & Shaver, 2015; Dobkin, Leiblum, Rosen, Menza & Marin, 2006), increase sexual satisfaction (e.g., Woloski-Wruble, Oliel, Leefsma, & Hochner-Celnikier, 2010), and increase feelings of safety in a sexual encounter (Jozkowski & Wiersma, 2015). Therefore, when the conceptualization of sexual health is comprehensive, communication self-efficacy may be more predictive of comprehensive sexual health than engaging in the traditional safe sex behaviors.

Cultural Influence of Heteronormativity

Finally, these models presented ways through which culture influences comprehensive sexual health outcomes. For both queer and heterosexual women, sexual health processes (i.e., communication self-efficacy and safe sex behaviors) worked differently for women with high internalized heteronormativity compared to those with low internalized heteronormativity. In other words, heteronormativity influenced individual and interpersonal sexual health processes for queer and heterosexual women. Thus, there is an interaction between cultural messages and gender (Easton & Hardy, 2009). Specific to heteronormativity, this demonstrates how constrictive and stigmatizing messages about women and their sexuality can actually alter

processes that would lead to better comprehensive sexual health outcomes. It's important to note that heteronormativity is a mechanism through which patriarchy and control is upheld (D'Emilio, & Freedman, 2012; Easton & Hardy, 2009) which may put women's health at risk, particularly if they do not have high sexual communication self-efficacy. Patriarchal structures have historically (and currently) attempted to control women's sexuality and their sexual health through stigmatizing processes such as slut-shaming (D'Emilio, & Freedman, 2012). This study shows how that can be a serious hinderance to women's comprehensive sexual health outcomes. Empowering women to communicate, advocate for their bodies, and control their health, may be ways in which women can fight back against heteronormative structures (Easton & Hardy, 2009). In other words, there is a clear emergent link that culture plays a role in health disparities. Thus, future research must consider cultural context and the messages women receive about their sexuality, to find ways through which to improve comprehensive sexual health for women. For women with high internalized heteronormativity, it may critical to improve sexual communication self-efficacy; without it, it is possible that they may not be able to communicate about other domains of sexuality, ultimately hindering their comprehensive sexual health outcomes (Quinn-Nilas et al., 2016).

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Appendix A: Survey Recruitment Letter

Sex and Health Survey

Dear Facebook friends,

I am reaching out to you today in hopes that you will participate in an anonymous and voluntary 20-minute survey that my research team has been working on. This survey examines how our thoughts about gender and sexuality influence the way we interact with sexual partners and how this influences our health.

Those who complete the survey can be placed in a drawing to receive 1 of 40 \$25 gift cards.

To participate, you must be 18 years or older and cisgender (your assigned sex at birth matches your gender identity). We welcome those with any sexual identity/orientation to complete the survey, and are developing a future specific survey for individuals who identify as trans*, transgender, or gender non-conforming.

You can access the survey here:

https://montclair.col.qualtrics.com/jfe/form/SV_9Y0LMJGZnY5tA8t

Additionally, please share this post with your friends.

Please feel free to privately message me with any questions you may have. Thank you so much!

The survey does not collect any identifying information about you other than basic demographic information (e.g., age, gender, race/ethnicity), which means your identity cannot be connected with you survey responses. Dr. Brad van Eeden-Moorefield who is a professor of Family Science and Human Development at Montclair State University is conducting the study. The study has been approved by Montclair State University's IRB (IRB approval FY18-19-1344).

Best,

XXXX

Appendix B: Informed Consent for Queer & Heterosexual Women

You are invited to take a survey about sex and health. I hope to learn how what we think about gender and sexuality influences our sexual activities. I also hope to learn about how these thoughts and activities influence our health. This should help me understand ways to improve everyone's health so I can use this information to create better health programs and policies.

If you decide to participate, please complete the questions that start on the next page. This survey will take about 20 minutes to complete. You will be asked to answer some demographic questions. Also, you will be asked questions about your thoughts related to gender and sexuality. Finally, you will be asked how you talk about sex with partners, behaviors and attitudes about sex, and your overall health. If you currently are in a romantic relationship you will be asked a few questions about that.

For your participation in the survey, you will be able to enter a drawing for 1 of 40 \$25 gift cards to Amazon. If you wish to be entered, our survey will link to another page where you will enter an email address that can be used to send the gift card, if you are selected. Data from this page will be stored in a separate data file such that it cannot be connected to anyone's survey responses.

You may not directly benefit from this research. However, we hope this research will result in finding ways we can support and improve the health and well-being of minority groups and others.

Some people might feel a little shy or less comfortable answering some questions. You can skip most questions you do not want to answer. There are a couple of demographic questions that cannot be skipped. This is to help us make sure we ask you the right questions. For example, we need to know who to ask about their current relationship and who does not need to be asked those questions because they are single.

If you decide to participate, you are free to stop at any time. Although unlikely, if any discomfort occurs, you may follow this link to find a mental health care provider near to you: (<https://findtreatment.samhsa.gov/>).

Data will be collected using the Internet. There are no guarantees on the security of data sent on the Internet. Confidentiality will be kept to the degree permitted by the technology used. We strongly advise that you do not use an employer-issued electronic device, laptop, phone, or WIFI to respond to this survey as many employers monitor use of all devices.

Please feel free to ask questions regarding this study. You may contact me if you have additional questions at: Dr. Brad van Eeden-Moorefield, vaneedenmobr@montclair.edu, 973-655-4440.

Any questions about your rights may be directed to Dr. Katrina Bulkley, Chair of the Institutional Review Board at Montclair State University at reviewboard@mail.montclair.edu or 973-655-5189.

Thank you for your time.

Sincerely,

Brad van Eeden-Moorefield, MSW, PhD, Certified Family Life Educator

Department of Family Science and Human Development

Montclair State University

By clicking the link below, I confirm that I have read this form and will participate in the project described. Its general purposes, the particulars of involvement, and possible risks and inconveniences have been explained to my satisfaction. I understand that I can discontinue participation at any time. My consent also indicates that I am at least 18 years of age.

[Please feel free to print a copy of this consent.]

I agree to participate (link to survey)

I decline (link to close webpage)

The study has been approved by the Montclair State University Institutional Review Board.

Appendix C: Survey Questions

Demographic Information

What is your age? _____

With which gender do you most identify?

- Female
- Male

What is the highest level of education you have completed?

- Did not complete high school
- High school/GED
- Some college
- Associate's Degree
- Bachelor's Degree
- Master's Degree
- PhD, MD, DO, or advanced graduate work
- Other (please specify) _____

What is your Race/Ethnicity? (Select all that apply):

- Black, Afro-Caribbean, or African American
- East Asian or Asian American
- Hawaiian or Pacific Islander
- Latino or Hispanic American
- Middle Eastern or Arab American

- Native American or Alaskan Native
- Non-Hispanic White or Euro-American
- South Asian or Indian American
- Other (Please specify) _____

What is your yearly household income?

- Under \$25,000
- \$25,000- \$49,999
- \$50,000- \$74,999
- \$75,000- \$99,999
- \$100,000- \$124,999
- Over \$125,000

Do you have health insurance? Yes No

With which sexual orientation do you identify most?

- Asexual
- Bisexual
- Gay/Lesbian
- Heterosexual
- Pansexual
- Queer
- Other (Please specify) _____

People are different in their sexual attraction to other people. Which best describes your feelings of sexual attraction?

- Only attracted to females
- Mostly attracted to females
- Equally attracted to females and males
- Mostly attracted to males
- Only attracted to males
- Not sure

Which statement do you most identify with?

- I do not have a regular romantic partner
- I have a regular romantic partner

What is your current relationship status?

- Single
- Dating casually
- In a relationship, but not living together
- Cohabiting
- Married
- Divorced and repartnered
- Widowed and repartnered

For those in a relationship:

How long have you been with your current partner (in years)? _____

Approximately how many sexual partners have you had in the last 12 months? _____

Now, approximately how many sexual partners have you had only in the last 1month? _____

Did you receive sex education in high school?

- No
- Yes
- N/A

If yes, was the high school sex education LGBTQ-inclusive (inclusive of diverse sexualities and gender identities)?

- No
- Yes, and LGBTQ-relevant issues were discussed in a negative way
- Yes, and LGBTQ-relevant issues were portrayed neutrally
- Yes, and LGBTQ-relevant issues were portrayed in a positive way
- N/A

Did you receive sex education in college?

- No
- Yes
- N/A

If yes, was the college sex education LGBTQ-inclusive (inclusive of diverse sexualities and gender identities)?

- No
- Yes, and LGBTQ-relevant issues were discussed in a negative way
- Yes, and LGBTQ-relevant issues were portrayed neutrally
- Yes, and LGBTQ-relevant issues were portrayed in a positive way
- N/A

Heteronormativity

Meyer (1995) Internalized Homophobia Scale **(Only queer women answered this subset of questions)**

Please rate your agreement with the following statements. Please note that we use the word queer to refer to all non-heterosexual identities, such as bisexual, gay, lesbian, pansexual.

1. I have tried to stop being attracted to people of the same gender.

1	2	3	4	5
Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree

2. If someone offered me the chance to be completely heterosexual, I would take the chance.

1	2	3	4	5
Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree



3. I wish I weren't queer.

1	2	3	4	5
Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree

4. I feel that being queer is a personal shortcoming for me.

1	2	3	4	5
Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree

5. I would like to get professional help in order to change my sexual orientation from queer to straight.

1	2	3	4	5
Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree

6. I have tried to become more sexually attracted to people of the same-sex.

1	2	3	4	5
Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree

7. I often feel it best to avoid personal or social involvement with other people who are queer.

1	2	3	4	5
---	---	---	---	---

Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
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8. I feel alienated from myself because of being queer.

1	2	3	4	5
Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree

9. I wish I could develop more erotic feelings about people of the same-sex.

1	2	3	4	5
Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree

Habarth (2014) Heteronormative Attitudes and Beliefs Scale

1. Masculinity and femininity are determined by biological factors, such as genes and hormones before birth.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree

2. There are only two sexes: male and female.

1	2	3	4	5	6	7
---	---	---	---	---	---	---

Strongly	Disagree	Somewhat	Neither Agree	Somewhat	Agree	Strongly
Disagree		Disagree	nor Disagree	Agree		Agree

3. All people are either male or female.

1	2	3	4	5	6	7
Strongly	Disagree	Somewhat	Neither Agree	Somewhat	Agree	Strongly
Disagree		Disagree	nor Disagree	Agree		Agree

4. Gender is the same thing as sex.

1	2	3	4	5	6	7
Strongly	Disagree	Somewhat	Neither Agree	Somewhat	Agree	Strongly
Disagree		Disagree	nor Disagree	Agree		Agree

5. Sex is complex; in fact, there might even be more than two sexes.

1	2	3	4	5	6	7
Strongly	Disagree	Somewhat	Neither Agree	Somewhat	Agree	Strongly
Disagree		Disagree	nor Disagree	Agree		Agree

6. Gender is a complicated issue, and it does not always match up with biological sex.

1	2	3	4	5	6	7
Strongly	Disagree	Somewhat	Neither Agree	Somewhat	Agree	Strongly
Disagree		Disagree	nor Disagree	Agree		Agree

7. People who say that there are only two legitimate genders are mistaken.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree

8. Gender is something we learn from society.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree

9. In intimate relationships, women and men take on roles according to gender for a reason; it is really the best way to have successful relationship.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree

10. In intimate relationships, people should act only according to what is traditionally expected of their gender.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree

11. It is perfectly okay for people to have intimate relationships with people of the same sex.

1	2	3	4	5	6	7
Strongly	Disagree	Somewhat	Neither Agree	Somewhat	Agree	Strongly
Disagree		Disagree	nor Disagree	Agree		Agree

12. The best way to raise a child is to have a mother and a father raise the child together.

1	2	3	4	5	6	7
Strongly	Disagree	Somewhat	Neither Agree	Somewhat	Agree	Strongly
Disagree		Disagree	nor Disagree	Agree		Agree

13. In healthy intimate relationships, women may sometimes take on stereotypical 'male' roles, and men may sometimes take on stereotypical 'female' roles.

1	2	3	4	5	6	7
Strongly	Disagree	Somewhat	Neither Agree	Somewhat	Agree	Strongly
Disagree		Disagree	nor Disagree	Agree		Agree

14. Women and men need not fall into stereotypical gender roles when in an intimate relationship.

1	2	3	4	5	6	7
Strongly	Disagree	Somewhat	Neither Agree	Somewhat	Agree	Strongly
Disagree		Disagree	nor Disagree	Agree		Agree

15. People should partner with whomever they choose, regardless of sex or gender.

1	2	3	4	5	6	7
---	---	---	---	---	---	---

Strongly Disagree Somewhat Neither Agree Somewhat Agree Strongly
 Disagree Disagree nor Disagree Agree Agree

16. There are particular ways that men should act and particular ways that women should act in relationships.

1 2 3 4 5 6 7
 Strongly Disagree Somewhat Neither Agree Somewhat Agree Strongly
 Disagree Disagree nor Disagree Agree Agree

Comprehensive Health (Physical, mental, sexual)

Global Measure Physical Health (self-developed)

1. To what extent do you feel you are physically healthy?

1 2 3 4
 Not at all healthy Very healthy

Experiences with Sexually Transmitted Infections/HIV diagnoses (self-developed)

How many times have you had the following STIs in the past 12 months?

Chlamydia ____

Gonorrhea ____

Syphilis ____

Do you have herpes?

Yes No

Do you have HIV?

Yes No

If yes, is your viral load undetectable?

Yes No

Sexual functioning

Thinking about your sexual encounters over the past 6 months, please answer the following questions to the best of your ability.

1. How often did you find it difficult to be aroused?

1	2	3	4	5	6	7
Never	Very rarely	Rarely	Half the time	More than half the time	Frequently	Always

2. How often did you find it difficult to feel sexual desire for a partner?

1	2	3	4	5	6	7
Never	Very rarely	Rarely	Half the time	More than half the time	Frequently	Always

3. How often did you find it difficult to get wet?

1	2	3	4	5	6	7
---	---	---	---	---	---	---

Never	Very rarely	Rarely	Half the time	More than half the time	Frequently	Always
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4. How often did you find it difficult to have an orgasm when you wanted to?

1	2	3	4	5	6	7
Never	Very rarely	Rarely	Half the time	More than half the time	Frequently	Always

5. How often did you experience discomfort or pain during vaginal penetration?

1	2	3	4	5	6	7
Never	Very rarely	Rarely	Half the time	More than half the time	Frequently	Always

Global physical Sexual health (Self-developed)

1. To what extent do you feel you are physically healthy enough to have sex?

1	2	3	4
Not at all healthy			Very healthy

Depression: Radloff's (1977) modified depression scale

Next is a list of the ways you may have felt or behaved. Please indicate how often you've felt this way during the past week?

1. I was bothered by things that usually do not bother me.

Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)
---	--	--	---------------------------------------

2. I had trouble keeping my mind on what I was doing.

Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)
---	--	--	---------------------------------------

3. I felt depressed.

Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)
---	--	--	---------------------------------------

4. I felt that everything I did was an effort.

Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)
---	--	--	---------------------------------------

5. I felt fearful.

Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)
--	---	--	------------------------------------

6. My sleep was restless.

Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)
--	---	--	------------------------------------

7. I felt lonely.

Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)
--	---	--	------------------------------------

8. I could not get going.

Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)
--	---	--	------------------------------------

9. I was happy

Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)
--	---	--	------------------------------------

10. I felt hopeful about the future.

Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)
---	--	--	---------------------------------------

Sex Anxiety

Thinking about the last month, please select the option that most closely corresponds with your beliefs.

1. I generally felt anxious about sex with other people

1	2	3	4	5	6	7
Untrue of me			Neither true nor untrue of me			Very true of me

2. I generally felt anxious about masturbation

1	2	3	4	5	6	7
Untrue of me			Neither true nor untrue of me			Very true of me

3. I generally felt anxious about sexual thoughts and feelings I had

1	2	3	4	5	6	7
Untrue of			Neither			Very true
me			true nor			of me
			untrue of			
			me			

Sexual Satisfaction Rosen, et al. 's (2004) Modified Sexual Health Questionnaire

1. How satisfied are you with the overall sexual relationships you have?

1	2	3	4	5
Not at all satisfied				Very satisfied

2. How satisfied are you with the quality of the sex life you have?

1	2	3	4	5
Not at all satisfied				Very satisfied

3. How satisfied are you with the number of times you have sex per week?

1	2	3	4	5
Not at all satisfied				Very satisfied

4. How satisfied are you with the way you and a partner show affection during sex?

1	2	3	4	5
Not at all satisfied				Very satisfied

5. How satisfied are you with the way you and a partner communicate about sex?

1	2	3	4	5
Not at all satisfied				Very satisfied

6. How satisfied are you with all other aspects of your sexual experience with a partner?

1	2	3	4	5
Not at all satisfied				Very satisfied

Sexual Communication Self-Efficacy (Quinn-Nilas et al., 2016)

How easy is it for you to engage in the following conversations with a person you have, or are considering having, sex with?

1. Ask how many partners they have had?

1	2	3	4
Very Difficult	Difficult	Easy	Very Easy

2. Ask if they have ever shared needles?

1	2	3	4
Very Difficult	Difficult	Easy	Very Easy

3. Ask if they are having sex with other people?

1	2	3	4
Very Difficult	Difficult	Easy	Very Easy

4. Ask if they have ever had a sexually transmitted infection?

1	2	3	4
Very Difficult	Difficult	Easy	Very Easy

5. The use of safe sex practices?

1	2	3	4
Very Difficult	Difficult	Easy	Very Easy

6. Tell them a certain sexual activity hurts you?

1	2	3	4
Very Difficult	Difficult	Easy	Very Easy

7. Tell them if a certain sexual activity makes you uncomfortable?

1	2	3	4
Very Difficult	Difficult	Easy	Very Easy

8. Tell them that a certain sexual activity is not making you feel good?

1	2	3	4
Very Difficult	Difficult	Easy	Very Easy

9. Suggest a new sexual activity (e.g., a new sexual position)?

1	2	3	4
Very Difficult	Difficult	Easy	Very Easy

10. Tell them you do not want to have sex?

1	2	3	4
Very Difficult	Difficult	Easy	Very Easy

11. Tell them you would like to have sex more often?

1	2	3	4
Very Difficult	Difficult	Easy	Very Easy

12. Tell them that a sexual activity feels good?

1	2	3	4
Very Difficult	Difficult	Easy	Very Easy

13. Tell them that you want to have sex?

1	2	3	4
Very Difficult	Difficult	Easy	Very Easy

14. Tell them that you like a specific sexual activity?

1	2	3	4
---	---	---	---

Very Difficult	Difficult	Easy	Very Easy
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15. Initiate sex?

1	2	3	4
Very Difficult	Difficult	Easy	Very Easy

Safe Sex Behavior

Safe Sex Behavior Questionnaire (DiIorio, et al. 1993)

Below is a list of sexual practices. Please read each statement and respond by indicating your degree of use of these practices in the past 12 months.

1. I insist on barrier methods (e.g. internal or external condoms) when I have sexual intercourse

1	2	3	4
Never	Sometimes	Most of the time	Always

2. I ask potential sexual partners about their sexual histories.

1	2	3	4
Never	Sometimes	Most of the time	Always

3. I avoid direct contact with fluids from my sexual partner.

1	2	3	4
Never	Sometimes	Most of the time	Always

4. I abstain from sexual intercourse when I do not know my partner's sexual history.

1	2	3	4
Never	Sometimes	Most of the time	Always

5. I avoid sexual intercourse when I or my partner has sores or irritation in my genital area.

1	2	3	4
Never	Sometimes	Most of the time	Always

6. If I know an encounter may lead to sexual intercourse, I carry a protection with me (e.g. external condom, internal condom, dental dam)

1	2	3	4
Never	Sometimes	Most of the time	Always

7. I engage in oral sex without using protective barriers.

1	2	3	4
Never	Sometimes	Most of the time	Always

8. If swept away in the passion of the moment, I have sexual intercourse without using a barrier (e.g. internal, external condom)

1	2	3	4
Never	Sometimes	Most of the time	Always

Appendix D: Thank you Message

Thank You Message

Thank you for participating in this survey! If you have any questions please contact the Primary Investigator on this study, Dr. Brad van Eeden-Moorefield via email at vaneedenmobr@montclair.edu or 973-655-4440.

Although unlikely, if any discomfort occurred, you can access a mental health care provider near you by following this link (<https://findtreatment.samhsa.gov/>). Again, thank you for taking time to respond to our survey!

[Click here to enter the raffle \(separate survey\)](#)

Appendix E: Raffle Entry

Please provide your email address if you wish to be entered in the drawing. If you are one of the winners, you will be notified via this email address.

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