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Sources of Sexual and Romantic Education: Associations with Sexual Minority Men's Sexual Experiences and Romantic Relationship Quality

Charlie Huntington

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Abstract

Individuals with sexual minority identities experience a variety of poorer mental and physical health outcomes, including those related to sexual and romantic quality, relative to heterosexual individuals (Beaulieu et al., 2017; CDC, 2021). These poorer romantic, sexual, and psychological outcomes may be attributable in part to lacking access to affirmative and relevant modeling of sexual minority experiences, such as through sex education (Gillespie et al., 2022; Keiser et al., 2019). This study aimed to understand how sexual minority men learn – in ways potentially both helpful and unhelpful – about romantic relationships and sexual activity, and how these experiences are related to their romantic and sexual behaviors. Three hundred and ten cisgender sexual minority men ages 18 to 75 were surveyed regarding their experiences learning about sex and romantic relationships, as well as their current functioning in sexual and romantic contexts and their explicit and implicit biases regarding sexual orientation. Partial support was found for the general hypothesis that current pornography viewing behaviors, as well as affirming and helpful experiences learning about sex and romantic relationships, would be associated with sexual and romantic outcomes. Pornography viewing and quality of one's learning experiences were positively and negatively associated with different types of sexual consent behaviors, involvement in sexual violence, and relationship satisfaction. Finally, implicit and explicit bias were negatively associated with relationship satisfaction, but not quality of learning experiences.

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Chapter One: Introduction

The assumption that all people will desire and pursue heterosexual sexual contact and relationships, also known as heteronormativity, pervades nearly all public and private spaces (Myers & Raymond, 2010); it is present in our lives from a very early age and reinforced across the social ecology (Herz & Johansson, 2015; Myers & Raymond, 2010). Despite this, sexual minority individuals access and acquire the alternative scripts to construct and live out non-heterosexual identities. However, the effort required of sexual minority individuals to establish their identities and live their lives against the grain of heteronormativity has substantial consequences, as evidenced by psychological and sexual health disparities between heterosexual and sexual minority individuals (Beaulieu et al., 2017; CDC, 2021; Charlton et al., 2013; Tornello et al., 2014).

Many of these poorer romantic, sexual, and psychological outcomes may be attributable in part to the lack of access to affirmative and relevant modeling of sexual minority experiences, such as through sex education (Gillespie et al., 2022; Keiser et al., 2019; Kubicek et al., 2010; Nelson et al., 2019; Sanchez, 2012). To address these gaps in the educational experiences of sexual minority youth, more research is needed into how sexual minority individuals learn – in ways both helpful and unhelpful – about sexual minority romantic relationships and sexual activity, and how these experiences are related to their actual romantic and sexual behaviors. This research study addressed answer this research question for a subset of sexual minority individuals, namely, cisgender sexual

minority men. The study's objective was to better understand how sexual minority men's romantic relationship quality and sexual behaviors, as well as their attitudes toward sexual minority identities, are related to their experiences with specific sources of sexual and romantic education. This paper reviews sources of sexual and romantic education, then the literature on sexual and romantic experiences of sexual minority men, before turning to its hypotheses and methods.

Sources of Sexual and Romantic Education

Below, I briefly review what is currently known about the experiences of sexual minority individuals in learning about sex and romantic relationships, and the even smaller body of research linking these experiences to romantic and sexual outcomes.

Sex Education. Sex education as it is typically delivered centers heterosexual experiences, doing little to reduce stigma around sexual minority identities, provide medically accurate and relevant information to sexual minority individuals, or describe sexual behaviors outside the traditional, heterosexual sexual script (Bishop et al., 2020; Bodnar & Tornello, 2019; Pingel et al., 2013). Most sexual minority youth report being unhappy with their formal sex education experiences (Dawson et al., 2018; Mata et al., 2021), noting that it is typically heteronormative and centered on promoting abstinence. Oftentimes, their experiences are wholly excluded; in one study, only 12% of millennials reported that any discussion of same-sex relationships occurred in their sex education experiences (Jones & Cox, 2015). This is in keeping with the fact that as of 2020, only 11 states required that sex education curricula mention or be affirming of LGBTQ experiences (SIECUS, 2020). When sexual minority experiences are included in sex education, it is often in a way that reinforces the notion of sexual and gender minority

(SGM) individuals as second-class citizens and actively disempowers them (MacAulay et al., 2022). For example,

mentioning sexual minority individuals only when covering content related to HIV and STIs, or omitting sexual minority relationships altogether from the curriculum, can leave SGM individuals feeling pathologized, excluded, or invisible (Gowen & Winges-Yanez, 2014; McCarty-Caplan, 2013).

Thus, for sexual minority individuals, standard curricula may instead be ineffective or harmful (Bodnar & Tornello, 2019; Coker et al., 2020). At the same time, receiving inclusive sex education appears protective against mental health issues (Keiser et al., 2019; Proulx et al., 2019) and to promote healthy and safe sexual behaviors (Nelson et al., 2022).

At this point in time, there is almost no research relating the quality of sexual minority individuals' romantic relationships to their sex education experiences. However, given how heteronormative most sex education curricula are (Bodnar & Tornello, 2019), it seems unlikely that sexual minority individuals gain much valuable information about building healthy intimacy from these educational experiences (Gillespie et al., 2022). By having participants complete a measure of the perceived inclusivity of their formal sex education experiences (Keiser et al., 2019), the current study will assess for possible links between more inclusive sex education and better romantic and sexual outcomes.

Parents and Peers. Effective communication with parents about sexual and romantic topics is a crucial element of healthy development and is associated with a myriad of better sexual health outcomes – at least for heterosexual youth (Bouris et al., 2015; Flores & Barroso, 2017; Widman et al., 2016). While heterosexual youth and their

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parents are known to discuss an array of topics related to sexual health (Beckett et al., 2010), few parents of sexual minority adolescent males engage them in conversations about sex (Mustanski et al., 2020; Thoma & Huebner, 2014). Parents report lacking the relevant knowledge to support their sexual minority children and find it particularly hard to support their children after their children come out (Feinstein et al., 2018; Newcomb et al., 2018). The conversations that do occur tend to be simplistic, heteronormative, and unhelpful for sexual minority youth (McKay et al., 2022; Mustanski et al., 2020; Nelson et al., 2019), often being limited to discussing HIV and condom use (Feinstein et al., 2018). Research is equivocal as to whether this communication is associated with higher or lower rates of sexual risk behaviors among sexual minority adolescent males (Bouris et al., 2015; Mustanski et al., 2017; Thoma & Huebner, 2014).

There is reason to expect that sexual minority men would report better sexual and romantic outcomes when they *have* received effective support from their parents; most sexual minority youth report that there are no trusted adults in their lives with whom they can discuss sexuality (Jones & Cox, 2015) and sexual minority adolescent males indicate a preference for learning about sexual health from their parents (Flores et al., 2019). More generally, sexual minority youth benefit from parental acceptance and social support (Bregman et al., 2013).

Most sexual minority youth receive insufficient or inaccurate education about same-sex romantic relationships from parents as well (Gillespie et al., 2022; Kubicek et al., 2010; Nelson et al., 2019). Lacking instruction or support in such topics likely puts sexual minority men at increased risk of poorer romantic outcomes, including involvement in dating violence (Donovan & Hester, 2010). Reliance on experiences in

heterosexual relationships or examples of heterosexual peers may give sexual minority youth inaccurate or incomplete models for same-sex relationships (Eyre et al., 2007). Furthermore, sexual minority youth who lack relationship and sexual knowledge, as well as supportive resources, are more likely to be abused in their early relationships (Donovan & Hester, 2010).

Same-age sexual minority peers may be more helpful sources of sexual education than parents, in addition to providing a sense of shared identity and connection (Teasdale & Bradley-Engen, 2010). However, peers may also be sources of misinformation due to their own lack of effective sex education (Mutchler & McDavitt, 2011), which is cause for concern given the importance of perceived peer norms in adolescence and young adulthood (Pedlow & Carey, 2004). At present, little is known about how sexual minority men learn from their peers about sexual and romantic expectations and behaviors.

Mainstream Media, the Internet, and Social Media. While there is some evidence mainstream media is becoming more inclusive in its depictions of sexual minority experiences (Bond et al., 2019; GLAAD, 2019; McInroy & Craig, 2017), it often presents sexual minority relationships through heterosexual paradigms, perpetuates negative stereotypes of sexual minorities, and fails to represent the wide range of ways same-sex attracted people interact with each other (Hellman, 2019; Sewell et al., 2017). In qualitative research, sexual minority youth indicate that it is emotionally and cognitively exhausting to sift through popular media in search of representations that feel authentic and identity-congruent (Baker, 2021). At present, there is no research relating experiences with popular media to sexual and relationship quality among sexual minority men.

More general use of the Internet as an educational tool holds a similar combination of much promise and some pitfalls for sexual minority individuals. Sexual minority youth report getting much of their sexual and romantic knowledge from "personal research" on the Internet and on social media (DeHaan et al., 2013; Stout et al., 2022). This 'research' can provide many positive experiences of identity growth and self-exploration (Hillier & Harrison, 2007), as this pathway provides the autonomy for sexual minority youth to find sources and content that affirm rather than stigmatize their identities (Bible et al., 2022; Bloom et al., 2022; Flanders et al., 2017; Tabaac et al., 2022; Stout et al., 2022). At the same time, sources online, particularly within social media, may be inaccurate or non-evidence-based (Bond, 2015; Nelson & Carey, 2016). Additionally, while learning online, sexual minority youth experience high rates of sexual harassment and are at risk of having unhealthy offline encounters with people met online (Priebe & Svedin, 2012).

Pornography. Many sexual minority youth seek out pornography as a source of sexual education (Arrington-Sanders et al., 2015; Tanton et al., 2015), and they report that pornography can be a helpful resource for identifying and understanding sexual behaviors in which they would like to engage, and for generally learning about non-heterosexual cultural norms (Arrington-Sanders et al., 2015; Dawson et al., 2018; Kubicek et al., 2010). Sexual scripts theory would suggest that sexual minority men acquire and reinforce sexual scripts while watching pornography, even if they report viewing just for sexual gratification (Corneau et al., 2021; Kvalem et al., 2016; Nelson et al., 2019).

While prior research has repeatedly demonstrated a positive association among sexual minority men between watching pornography and engaging in condomless anal sex (Nelson et al., 2014; Rosser et al., 2013; Whitfield et al., 2018), no research to date has connected pornography viewing to other sexual behaviors among sexual minority men. Content analyses of popular videos featuring men having sex with men have found that displays of physical intimacy and, to a lesser extent, verbal intimacy, are relatively common (Newton et al., 2021). However, another study found that kissing took place in 34% of pornographic videos featuring sex between men (Downing et al., 2014). A third study found that, relative to mixed-sex videos, there were more displays of both affection/pleasure *and* aggression in same-sex videos (Seida & Shor, 2021). Finally, although sexual consent behaviors in sexual minority videos have not been studied, consent behaviors were rare in a content analysis of popular heterosexual pornography videos (Willis et al., 2020). Taken together, these content analyses suggest that watching pornography would likely model non-use of consent behaviors and safe sex practices, and potentially model sexual aggression.

In lieu of more traditional sources of romantic education, sexual minority individuals may turn to pornography not just for sexual pleasure, but to learn about romantic intimacy as well (Gillespie et al., 2022). Sexual minority individuals routinely endorse pornography as an important source of education about relationships (e.g., Arrington-Sanders et al., 2015; Kubicek et al., 2010; Nelson et al., 2014, 2019; Rasberry et al., 2018). While an abundance of research links solitary pornography viewing among men in heterosexual relationships to poorer relationship quality (e.g., Huntington et al., 2021; Willoughby et al., 2021), only one study to date has sought to determine whether

sexual minority individuals' pornography viewing is related to their relationship satisfaction; in this study, Sommantico and colleagues (2021) found that relationship satisfaction was lower among sexual minority men as they reported more problematic pornography use. As sexual minority men watch pornography at higher rates than heterosexual men (Rosser et al., 2013) and may be more influenced by portrayals of male bodies in the media (Carper et al., 2010), it seems likely that a negative association between solitary pornography viewing and relationship quality would exist for sexual minority men as well.

Dating Apps. Most sexual minority men frequent dating apps, such as Grindr; users typically access the apps at least several times a day (Goedel & Duncan, 2015; Lehmiller & Ioerger, 2014; Rosser et al., 2013). For this reason, dating apps are increasingly recognized as a ubiquitous aspect of sexual minority men's lives and a critical pathway for connection with sexual minority communities (Renninger, 2019; Wu & Ward, 2018; Zervoulis et al., 2020). In fact, dating apps are so integrated into sexual minority men's social, romantic, and sexual lives that one meta-analysis deemed them "the mediation of gay men's lives" (Wu & Ward, 2018).

The interactions sexual minority men have on dating apps therefore have educational and socializing aspects. In one study of sexual minority young adults, participants reported collaborating with friends to learn how to successfully navigate dating apps and stay safe while pursuing hookups and relationships (Byron et al., 2021). Other research suggests that dating apps support growth by demonstrating to sexual minority individuals that there are other sexual and gender minority individuals living near them, offering a sense of what the local LGBTQ community looks like (Fox &

Ralston, 2016). Participants in Fox and Ralston (2016)'s study also spoke at length about the experiential learning that takes place through interaction with dating apps. For example, dating apps provide valuable examples of what self-presentation in the LGBTQ community looks like, especially for people who have not yet come out or started dating (Fox & Ralston, 2016; Pym et al., 2021). In addition to accessing queer community through dating apps (Woo, 2015), users also gain exposure to sexual health information, both through conversations with potential partners and through educational elements of the apps themselves (Sawyer et al., 2018).

Dating apps are gateways to both casual sexual encounters and longer-term relationships; in one study of men who have sex with men, most participants had met their current or most recent primary partner through a dating app (Prestage et al., 2015). Just as importantly, many sexual minority men remain on dating apps while in committed relationships (Lehmiller & Ioerger, 2014; Phillips et al., 2014).

Scholars have paid considerable attention to how dating app users choose to portray themselves and the kinds of partners and connections they seek. To this end, much has been written about men's desiring to embody (and to find in their partners) an "idealized masculinity", which is characterized by tropes of muscularity and traditional masculinity (e.g., Cascalheira & Smith, 2020; Oakes et al., 2020; Sanchez & Vilain, 2012). On average, men seem to prefer profiles that feature photos embodying "straight-acting" (i.e., traditionally masculine) characteristics (Cascalheira & Smith, 2020; Miller, 2015) and attribute perceived disinterest in their own profiles to a lack of such stereotypical self-presentation (Oakes et al., 2020). This preference is often communicated directly, via the inclusion of stated preferences of "masc", "no fem", or

"masc4masc" (i.e., I am a masculine-presenting man seeking another masculine-presenting man) (Miller, 2015). Verbal descriptions of oneself as masculine are less common than pictorial displays of masculinity, such as involvement in sports, working out, or being engaged in outdoor activities (Bonner-Thompson, 2017; Miller, 2015).

Sexual minority men's dating app usage may also reflect a misogynistic or "femmephobic" orientation (Hoskin, 2019; Miller & Behm-Morawitz, 2016; Sanchez & Vilain, 2012), wherein men can devalue feminine aspects of themselves and others by presenting as masculine and downplaying their femininity. In fact, in one study of 300 dating app profiles created by men seeking men, not one user described himself using feminine terms (Miller, 2015). When men do self-identify on dating apps with any roles or characteristics associated with femininity, such as being bottoms, or the receptive partners in anal sex (Hoskin, 2017), they seek to recast these characteristics in language that positions their choices and preferences as assertive and masculine (e.g., a man who bottoms controls whether their partner has pleasure) (Garcia-Gomez, 2020).

The nature of dating apps – their funneling of one's self-presentation down to simple visuals and scant words – has been theorized to explain why sexual minority men may focus on portraying themselves as a stereotypically desirable man (Jaspal, 2017; Lutz & Ranzini, 2017; Oakes et al., 2020). In such a constrained environment, providing the right signifiers of one's social identity, even as those signifiers may involve self-stereotyping, becomes paramount (Onorato & Turner, 2004). Too much exposure to and engagement in such self-presentation may be harmful; sexual minority men who use dating apps excessively seem to experience poorer mental and physical wellbeing overall (Breslow et al., 2020; Jaspal, 2017; Obarska et al., 2020).

As the previous paragraphs demonstrate, dating apps are central to sexual minority men's experiences with romantic relationships and sexuality, a focal point for both learning about and enacting sexual and romantic norms (Havey, 2021). It is unclear how other experiences learning about sex and relationships might influence sexual minority men's dating app behaviors and attitudes; to date, no study has directly considered potential links between experiences with sex education and behavior on dating apps. Taveres and colleagues (2022), in a study of Brazilian heterosexual and sexual minority college students, related learning about safe sex behaviors and participants' dating app behaviors to their overall sexual wellbeing, but did not investigate how those two variables may be related to each other. This study will explore the question of how different experiences of learning and sex and relationships may be associated with different dating app behaviors and attitudes. For example, there is the possibility that more effective sex education experiences may protect against sexual minority men being taken advantage of, abused, or experiencing harassment on dating apps (Dietzel, 2021, 2022; Lauckner et al., 2019), a safety issue for which sexual minority male adolescents feel unprepared (Jozsa et al., 2021).

Sexual Minority Men and Sexual Behaviors

In parallel with the research on sexual minority men's experiences learning about sex and relationships, the research into their sexual behaviors has notable omissions. The sexual behaviors of sexual minority men have primarily been studied through the lens of HIV prevention (e.g., use of condoms; Mustanski et al., 2014). Although risk avoidance is an essential element of healthy sexuality, especially for sexual minority men, who account for most new HIV diagnoses in the United States each year (CDC, 2021), this

narrow focus leaves other aspects of sexual health understudied (Wolitski & Fenton, 2011). The present study, in addition to considering how different sources of sex education are related to rates of sexually transmitted infections and condom use (Gowen & Winges-Yanez, 2014), examined several aspects of sexual health that have been rarely investigated among sexual minority men: 1) sexual consent behaviors; 2) involvement in sexual violence; 3) safer sex practices beyond use of condoms; and 4) dating app-related behaviors.

Sexual Consent Behaviors. Qualitative research suggests that sexual minority individuals ascribe a higher level of importance to negotiating consent than heterosexual individuals do (deHeer et al., 2021). While individuals in heterosexual relationships generally report using implicit and nonverbal cues to communicate consent (Jozkowski et al., 2014; Muehlenhard et al., 2016; Willis et al., 2019), sexual minority men may communicate consent more directly and actively (McKenna et al., 2021; Sternin et al., 2022; for an exception, see Beres et al., 2004). In an unpublished master's thesis, McLeod (2015) suggested that this pattern may derive from traditional gender roles being less present or salient in non-heterosexual sexual activity. However, it is not clear how sexual minority men learn to negotiate sexual consent, nor what sources of sexual education may be associated with their consent behaviors.

Involvement in Sexual Violence. Most research linking sexual violence to experiences with pornography or sex education has been conducted with heterosexual participants; research with sexual minority samples is in its infancy (e.g., Herbitter et al., 2022; Nelson et al., 2019). Sexual minority male adolescents in one study reported wishing they had received more instruction and support with sexual communication skills

prior to sexual debut (Stout et al., 2022), highlighting the importance of determining which sex education experiences, both formal and informal, may reduce sexual minority men's risk of perpetrating sexual violence or becoming the victim of sexual violence.

Safer Sex Practices. While a few studies have attempted to link condom use among sexual minority men with sex education experiences (e.g., Rasberry et al., 2018), little is known about how other safe sex practices, such as discussing sexual histories with new partners and abstaining from sexual activity when using drugs or alcohol, may be influenced by sexual minority men's exposure to different sources of sexual education. Additionally, sexual agreements, or the relationship expectations that sexual minority couples establish together regarding possible extradyadic sexual activity (Godfrey et al., 2021), have not been studied in this context.

Sexual Minority Men and Romantic Relationships

Romantic relationships among sexual minority individuals, particularly youth, remain critically understudied (Mustanski, 2015), with topics such as HIV prevention taking precedence over basic science research into romantic relationship functioning (Mustanski et al., 2014). Research has shown that positive romantic relationship experiences in adolescence set the stage for better social, emotional, and romantic functioning in adulthood among heterosexuals (Connolly & McIsaac, 2011), and there is every reason to believe that sexual minority individuals follow a similar pattern (Cook & Calebs, 2016). Sexual minority adolescent males do not appear to differ significantly from heterosexual adolescent males in desiring intimate, passionate, and committed romantic relationships (Bauermeister et al., 2011; Galperon et al., 2013).

While the romantic relationships of sexual minority men mirror heterosexual relationships in many aspects, there are some key divergences, such as a focus among sexual minority men on defining relationship agreements regarding sexual boundaries (Macapagal et al., 2015). Sexual minority men also report wanting more support with identifying role models and sources of support for their romantic relationships (Greene et al., 2015); lacking these resources may put sexual minority men at risk of poorer romantic relationship quality (Diamond & Butterworth, 2008). Therefore, the current study will use a measure of relationship quality specifically designed for same-sex couples (see Belous & Wampler, 2016) to investigate how sources of romantic education are related to sexual minority men's romantic relationship quality.

Implicit and Explicit Bias and Sexual and Romantic Outcomes

Explicit biases are attitudes toward a particular group or social identity that people are aware of and will deliberately self-report (Greenwald et al., 1998). By contrast, implicit biases are unconscious and automatic preferences (Greenwald et al., 1998). Biases that may not be expressed explicitly are often held implicitly, including toward sexual minority individuals (Burke et al., 2015). This study considered how both explicit and implicit biases may be related to sexual minority men's experiences of learning about sex and relationships and to their romantic relationship quality. Specifically, I argue that the helpfulness and affirmingness of sexual minority men's experiences of learning about sex and relationships should be related to their implicit pro-heterosexual bias.

Implicit biases against minoritized identities are commonly held and reliably demonstrated through measures of implicit attitudes (Nosek et al., 2007). For example, it has been reliably shown that most people will more quickly pair images or words

corresponding to minoritized identities with words with negative connotations than they will pair images or words corresponding to more privileged identities with those same negative words, suggesting that they hold a bias against those minoritized identities (Greenwald et al., 2009; Nosek et al., 2007). A given individual's implicit bias towards a particular group depends in part on how relatively high- or low-status the group under consideration is, as well as on which identities that person holds (Aidman & Carroll, 2003, Cadinu & Galdi, 2012). While people in minoritized groups often explicitly endorse positivity toward their in-groups (Jost et al., 2004), they may also demonstrate positive outgroup biases as well, which may reflect the broader cultural bias in favor of higher-status groups (Calanchini et al., 2022; Essien et al., 2022; Nosek et al., 2007).

One category of implicit bias that has been the subject of substantial study is an implicit preference for heterosexuality over sexual minority identities (Xu et al., 2014). While explicit internalized stigma or bias against non-heterosexual identities has been assessed through a number of self-report measures, such as feelings thermometers or semantic differential scales (Lilling & Friedman, 1995; Norton & Herek, 2013), implicit pro-heterosexuality bias has primarily been assessed using the version of the Implicit Association Test (IAT; Greenwald et al., 1998) commonly known as the Sexuality IAT (Banse et al., 2001). The Sexuality IAT has been completed by over three million participants across over a dozen countries (Xu et al., 2014). Analyses of these data over time (i.e., from the mid-2000s to the late 2010s) have shown trends of increasing neutrality in implicit anti-minority attitudes, including a decrease in pro-heterosexuality bias, with only minimal moderation by demographic variables (Charlesworth & Banaji, 2019, 2021). Many scholars have analyzed publicly available data from the Sexuality

IAT (e.g., Sabin et al., 2015), and some have incorporated independent administration of this IAT into their research protocols, including a limited number of studies with sexual minority samples (e.g., Bankoff et al., 2016). For example, the Sexuality IAT has been used to study sexual minority men's implicit attitudes toward their own sexual orientation (e.g., Jones & Devos, 2014; Snowden et al., 2008). While some studies have found implicit biases in favor of one's own sexual orientation across multiple identities (Kirby et al., 2021; Jones & Devos, 2014), other research suggests that gay men, relative to lesbian women, report stronger self-stigma (e.g., Herek et al., 2009) and demonstrate explicit – but not implicit – bias favoring homosexuality (Anselmi et al., 2015; Banse et al., 2001).

To date, researchers have not investigated possible correlates of sexual minority men's levels of implicit pro-heterosexual bias. People in lower-status groups self-categorize into their in-groups more readily than people in higher-status groups (e.g., gay men self-categorize more readily than heterosexual men) (Cadinu et al., 2013b; Fasoli et al., 2018). This is particularly true when they are cued to think about this social identity (Cadinu et al., 2013a, 2013b). It follows from these findings that receiving sex and relationship education that negatively frames minoritized identities, while portraying heterosexuality positively, would be associated with an implicit preference for heterosexuality in adulthood (Shtarkshall et al., 2007; McNeill, 2013).

At the same time, intragroup contact among minoritized individuals is beneficial for identity formation, a sense of belonging, and wellbeing (Frable et al., 1998; Levin et al., 2006; MacInnis et al., 20017; Pearson & Geronimus, 2011). Additionally, Jellison and colleagues (2004) found a positive association between implicit pro-gay bias among

gay men and their involvement in the broader gay community. These findings suggest that learning about sex and relationships in identity-affirming and helpful ways would engender positive associations with that identity over time, leading to less pro-heterosexual bias or even a pro-sexual minority bias.

By contrast, expressing explicit internalized heterosexism, or self-reported negative attitudes toward one's sexual identity that are based in a centering and normalizing of heterosexuality (Meyer, 2003), has been studied more thoroughly and shown commonly to be correlated with a range of negative outcomes for sexual minority individuals (Herek et al., 2009). Research also shows that sexual minority individuals' internalized anti-homosexual bias (i.e., explicit bias), just like implicit bias, results in part from exposure to heterosexist incidents and environments (Meyer, 2003). This suggests that sexual minority men's experiences of learning about sex and relationships should also be related to the explicit attitudes they hold toward their own sexuality, as well as their implicit attitudes (McNeill, 2013). Therefore, I hypothesized that participants' pro-heterosexual implicit bias and anti-homosexual explicit bias would be weaker as they report more affirming and helpful experiences of learning about sex and romantic relationships.

Internalized heterosexism (measured as explicit bias) is correlated with lower psychological wellbeing (Meyer, 2003) and lower relationship quality among sexual minority couples (Frost & Meyer, 2009; Mohr & Fassinger, 2006; Szymanski & Hilton, 2013). Since implicit pro-gay bias is associated with outness and involvement with the gay community (Jellison et al., 2004) and with overall psychological distress (Hatzenbuehler et al., 2009) among gay men, and these are known correlates of

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relationship outcomes for sexual minority men (Clausell & Roisman, 2009; Mohr & Daly, 2008), we can reasonably infer that the degree to which sexual minority men hold this implicit bias will also be associated with their romantic relationship outcomes. In support of this prediction, a previous study of implicit bias regarding interracial couples found less implicit bias against these interracial couples among people who self-reported contact with such couples or had been in such a couple themselves (Skinner & Rae, 2019). Therefore, I predicted that greater pro-heterosexual implicit bias and anti-homosexual explicit bias would predict less relationship satisfaction for the sexual minority men in this sample.

The Current Study

This dissertation project is organized into four aims. Prior to introducing the aims, I note that in this study, pornography viewing will be measured contemporaneously, not retrospectively, as other educational sources will be. Additionally, specific hypotheses were made for associations of pornography viewing with romantic and sexual outcomes. The rationale for these differences between pornography viewing and other sources of education is twofold. First, sexual scripts theory (Simon & Gagnon, 1986) suggests that repeated viewing of pornography constitutes a continual relearning and reinforcing of sexual and relational scripts; therefore, it is assumed to have a more active and ongoing association with participants' behaviors. Second, there is ample evidence from research with men in heterosexual relationships (e.g., Huntington et al., 2021; Willoughby et al., 2021) to suggest that most sexual minority men's solitary pornography viewing (1) will be negatively associated with relationship quality and (2) will be associated with less

desirable sexual outcomes. By contrast, the potential influence of other sources of sexual and romantic education seems more dependent on the qualities of those experiences.

Aim 1 – Romantic Relationships. The first aim had two objectives: (1) to determine how sexual minority men's pornography viewing is related to their romantic relationship quality (i.e., commitment, relationship, satisfaction, and emotional intimacy); and (2) to expand our understanding of how sources of sexual and romantic education are related to the quality of sexual minority men's romantic relationships. The following hypotheses were proposed.

Hypothesis 1a: Rates of solitary pornography viewing will be negatively associated with romantic relationship satisfaction and investment in an agreement regarding sexual boundaries (for partnered participants) and romantic relationship self-efficacy (for all participants).

Hypothesis 1b: Participants reporting more access to helpful and affirming sources of sexual and romantic education will report higher romantic relationship quality and investment in an agreement regarding sexual boundaries.

Aim 2 – Sexual Health. The second aim of this study was to better understand how sources of sexual education are related to sexual health outcomes for sexual minority men. Since most previous work on sexual health among sexual minority men has focused on sexual risk behaviors and HIV-prevention, this study will focus on outcomes that have received less attention in studies with sexual minority men (e.g., other safe sex practices; sexual consent self-efficacy and behaviors; sexual violence). The following hypotheses are proposed.

Hypothesis 2a: Participants' solitary pornography viewing will be (a) negatively associated with use of effective sexual consent behaviors; (b) positively associated with involvement in sexual violence; and (c) negatively associated with safer sex behaviors.

Hypothesis 2b: Access to helpful and affirming sources of sex education will be (a) positively associated with use of effective sexual consent behaviors; (b) positively associated with safe sex practices; and (c) negatively associated with sexual violence involvement.

Exploratory Analysis Related to Aim 2. While prior studies have begun to identify the frequency with which sexual minority youth report learn about sexual health from different sources (e.g., Mata et al., 2021), it is less clear *which topics they learn about where*. Exploratory analyses will therefore be conducted to see from which sources of sexual and romantic education (see Table 1 below) participants learned about different sex- and relationship-related topics (see Table 2 below).

Aim 3 – Dating App Use. The third aim of this study is to understand how sources of sexual and romantic information are related to sexual minority men's attitudes toward masculinity and experiences on dating apps. As described above, dating apps appear to be a space where traditional masculine norms are considered desirable and are thereby perpetuated and reinforced. To date, no study has directly explored how different experiences of learning and sex and relationships may be associated with different dating app behaviors and attitudes. Exploratory analyses will seek to answer the following research questions, for which no directional hypotheses are made.

Research Question 3a: Is participants' masculine consciousness related to their access to helpful and affirming sources of sexual and romantic education?

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Research Question 3b: Will participants' experiences with coercive interactions and abusive behaviors from partners met on dating apps be related to their access to helpful and affirming sources of sexual and romantic education?

Aim 4 – Implicit Bias. The fourth aim of this study is to understand how both explicit and implicit heterosexist bias may be related to sexual minority men's experiences of learning about sex and relationships and their romantic relationship satisfaction. To date, no study has directly explored how implicit attitudes in particular are associated with these outcomes. It will test the following hypotheses.

Hypothesis 4a: As participants report more affirming and helpful experiences of learning about sex and romantic relationships, they will demonstrate lower levels of pro-heterosexual implicit and explicit bias.

Hypothesis 4b: Greater pro-heterosexual implicit and explicit bias will be associated with less relationship satisfaction for the sexual minority men in this sample.

Chapter Two: Method

Procedure

Participants were recruited using CloudResearch, an online recruitment and survey delivery service that has been successfully used to target specific demographics, including sexual minority individuals (Potter et al., 2021; Temple et al., 2024). Participants consented to and completed a single (i.e., cross-sectional) survey, accessed via Qualtrics. Participants were compensated $6 upon survey completion.

In this study, participants were asked to report retrospectively (i.e., concerning childhood and adolescence) on experiences of sex and relationship education, as well as on a few key sexual and relationship variables. Retrospective report may be subject to biased reporting (Hall et al., 2021). Two primary concerns raised about retrospective report are that participants may be influenced by norms against disclosing sexual experiences (Catania, 1999) and the overall fallibility of memory (Jaccard et al., 2002). Additionally, personal biases about sexuality may influence disclosure; for example, participants may be motivated to present a narrative that feels "authentic" to their conceptualization of their identity (Diamond, 2006).

At the same time, other researchers question how substantial these concerns are. One review, although somewhat older, found that there was insufficient evidence to state that autobiographical memories are substantially susceptible to contamination or revision (Brewin et al., 1993). More recently, Pinto and colleagues (2014) found "good to

excellent agreement" between Child Protective Services reports and recall of the children identified in those reports (Pinto et al., 2014, p. 431). And in another study, simple self-report did not differ significantly from recall through a standardized psychiatric interview (Gayer-Anderson et al., 2020). Additionally, retrospective measure has the advantage of a more mature perspective – participants may be better able to describe processes, such as sexual identity development, whose fluid nature make them difficult to describe in the moment, particularly for youth (Mills-Koonce et al., 2018).

Retrospective reports, despite their limitations, are perhaps the most common method for assessing sexual minority experiences in youth (Fisher, 2012). For example, sexual minority individuals have reported on their childhood or adolescence sexual orientation (e.g., Bailey & Zucker, 1995; Frye et al., 2014), parental gender policing (Bauermeister et al., 2017), coping strategies (Juster et al., 2016), efforts to conceal identity (Frost & Bastone, 2008), and sexual identity development milestones (Bishop et al., 2023; Kinnish et al., 2005). Often, these variables are related to current markers of psychological wellbeing (e.g., Bauermeister et al., 2017; Frye et al., 2014; Juster et al., 2016). Importantly, these studies have included a wide age range of participants; for example, Calzo and colleagues (2011) conducted secondary data analyses on the timing of sexual orientation milestones in childhood and adolescence with participants ranging in age from 18 to 84 years old. As another example, Kinnish and colleagues (2005) asked heterosexual and sexual minority participants ages 36 to 60 to describe their sexual orientation at five-year intervals across their adult lives.

Retrospective evaluation of one's sex education experiences, via both self-administered questionnaires and researcher-led interviews, is relatively common in

research on sex education conducted with young adults through older adults (e.g. Hunt, 2023; Yeung et al., 2017), including among sexual minority individuals of all ages (e.g., Bible et al., 2022; Currin et al., 2017; Tabaac et al., 2022). For example, Keiser and colleagues (2019), while acknowledging the potential limitations of their methodology, asked their sexual minority participants not only to retrospectively rate the inclusivity of their formal experiences of sex education, but also to recall their levels of internalizing symptoms, suicidality, sexual risk-taking, and substance use during high school.

There is some research to suggest that especially salient experiences in adolescence will be remembered with greater accuracy. One study asked sexual minority individuals to recall instances of school bullying via self-report twice over a span of roughly a year (Rivers, 2001), and found that recall was mostly consistent across the two reports. A similar study found adequate agreement in recall of interpersonal violence victimization in adolescence among sexual minority adults (Surkan et al., 2020). Other researchers have found reliability in recall of psychosexual developmental milestones (e.g., Schrimshaw et al., 2006).

Taken together, these studies provide ample justification for asking participants in this study to retrospectively report on their experiences of sex, relationships, and sex and relationship education. That each of these experiences was likely salient for their sexual identity development may only increase the likelihood that they are remembered (Burton et al., 2019).

Participants

This study aimed to enroll at least 250 participants. Power analyses indicated that to detect an f^2 effect size of 0.1 (equivalent to a Cohen's d of 0.2), powered at 0.95, in a

linear regression with one independent variable (i.e., the composite variable describing how affirming and helpful participants' learning about sex and relationships was) and five covariates, would require at least 215 participants. Covariates included retrospective reports of discrimination (for analyses involving prior learning experiences), shared pornography viewing (for analyses involving solitary pornography viewing), and participant age. Initial inclusion criteria were identifying as a sexual orientation other than "heterosexual", identifying as a cisgender man, being in a romantic relationship, and being between the ages of 18 and 45. To recruit for such a sample, the inclusion criteria used by CloudResearch were sex (i.e., "male"), country of residence (i.e., "United States"), relationship status (i.e., "married", "in a civil union/partnership", or "in a relationship"), gender (i.e., "man"), and sexual orientation (i.e., "homosexual", "bisexual", "asexual", or "sexual orientation not listed"). (Note that participants also defined their sexual orientation in the study survey itself, using more categories than those listed above.)

The gender identity and age limitations in the study were designed to ensure that the sample was (relatively) homogenous in terms of its socialization and sexualization experiences. In other words, to better understand one specific experience of learning about sex and romance – that of cisgender sexual minority men – we sought a sample in which all participants were socialized male and were young enough to recall with some detail their experiences in adolescence of learning about sexuality and romantic relationships. However, due to miscommunication between the researcher and CloudResearch personnel, individuals over the age of 45 were able to participate in the

study. The decision was made to include the older individuals in the study, both to preserve statistical power and to potentially increase the range of experiences captured.[1]

Measures

The following measures were presented to participants, though not in the order they are presented here.

Sources of Sexual and Romantic Education. Participants were asked how much they learned about sexual and romantic topics (Table 1) from different sources (Table 2) identified as salient in the literature review (Baker et al., 2021; Flanders et al., 2017; McKay et al., 2022; Sondag et al., 2022; Tabaac et al., 2021, 2022). Table 1 lists the seven topics identified as "minimum, essential content and skills for K-12 sex education" (National Sexuality Education Standards, 2020, p. 15). Participants were asked to identify whether each source from Table 2 was a part of their learning both prior to and after turning 18 years old. They then indicated if they learned about each topic from Table 1 from each source in Table 2 and rated its helpfulness or hurtfulness for that specific topic on a seven-point Likert scale from "extremely helpful" to "extremely hurtful"; these scores were used in exploratory analyses for Aim 2.

Table 1. Sex and relationship topics.
Consent and healthy relationships (e.g., how to say no to undesired sex, how to communicate with partners)
Anatomy and physiology (e.g., knowing the sexual body parts and how they function)
Puberty and sexual development (e.g., knowing how bodies change during puberty)
Gender identity and expression (e.g., identifying gender identity expectations and how culture influences them)

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[1]Note: Results did not change significantly when analyses were run with only participants ages 18 to 45.

Sexual orientation and identity (e.g., learning about different sexual orientations)
Sexual health (e.g., options for avoiding STIs, such as abstinence or use of protection)
Interpersonal violence (e.g., discussing sexual assault risk, identifying warning signs of abuse)

Table 2. Sources of sexual and romantic education.

Pornography
Personal research on the Internet
Social media
Popular media (i.e., movies, TV, social media)
Dating apps
Schools
Religious institutions
Peers
Parents
Romantic/sexual partners

Perceptions of Educational Sources. For each source in Table 2, participants indicated their level of agreement on a seven-point Likert scale with the following questions: "I found [source] helpful for learning about the sex and relationships I want to have" and "Learning about sex and relationships from [source] was affirming of my sexual orientation." These scores were averaged to generate the composite variable used as a predictor in Hypotheses 1b, 2b, 3a, 3b, and 4a. Participants were also asked to indicate how helpful they think the education they received was in general (i.e., "Thinking about your experiences of learning about sex and relationships in formal settings, how helpful do you think they were for all the people present?"). Finally, participants rated the effectiveness of each of the ten sources in Table 2 for each of the seven topics in Table 1 on a seven-point Likert scale from "Extremely hurtful" to "Extremely helpful", with a midpoint of "Neither helpful nor hurtful."

Retrospective Contextual Variable. Participants completed the homonegative school climate subscale of the Sexual Minority Adolescent Stress Inventory (Schrager et al., 2018). Participants indicated how many of four homonegative school climate factors (e.g., "I saw other LGBTQ youth treated badly at my school") were present during their childhood and adolescence ($M = 1.904$, $SD = 1.558$, $Range = 1\text{-}4$, Cronbach's alpha = .805).

Explicit Internalized Homophobia. The Revised Internalized Homophobia Scale (Herek et al., 2009) was administered to measure explicit bias against sexual minority individuals. Participants indicated on a seven-point Likert scale how much they agreed with five statements such as "If someone offered me the chance to be completely heterosexual, I would accept the chance." ($M = 2.535$, $SD = 1.503$, $Range = 1\text{-}7$, Cronbach's alpha = .880).

Pornography Viewing. Data collection regarding pornography viewing followed the format used by Nelson and colleagues (2014, 2016, 2019). Participants were asked whether they have ever viewed pornography alone. Pornography was defined as "material (text, picture, video, etc.) that (1) creates or elicits feelings or thoughts and (2) contains explicit exposure or descriptions of sexual acts involving the genitals, such as vaginal or anal intercourse, oral sex, or masturbation". Participants who responded affirmatively to this question then indicated how often they had viewed pornography in the last 12 months on a seven-point scale (i.e., from "once in the last year" to "daily"). Regarding their viewing in the past 12 months, participants were also asked how long, on average, each viewing lasted, on a seven-point Likert scale from "less than a minute" to "more than an hour". The same two items were administered regarding shared viewing with a partner as

well. For analytic purposes, the frequency and duration measures were multiplied together to create an overall pornography viewing scores.

Sexual Consent. Participants completed the Process-Based Consent Scale (Glace et al., 2021), a recently developed measure that seeks to correct for prior scales underrepresenting how consent is an ongoing process in sexual encounters. This scale has three subscales: ongoing consent (e.g., "I pay attention to my partner's body language during sexual encounters to be sure that they want to have sex"), subtle coercion (e.g., "I would tell a partner that if they cared about me they would have sex with me"), and communicative sexuality ("I value ongoing conversations about my and my partner's sexual desires); each subscale was considered as a distinct outcome variable. Each subscale demonstrated good reliability (ongoing consent, ($M = 5.675$, $SD = 1.130$, *Range* $= 1$-7, Cronbach's alpha $= .868$; subtle coercion, $M = 2.762$, $SD = 1.484$, *Range* $= 1$-7, Cronbach's alpha $= .895$; communicative sexuality, $M = 5.480$, $SD = 1.005$, *Range* $= 1$-7, Cronbach's alpha $= .808$).

Safe Sex Practices. Participants completed the Safer Sex Behavior Questionnaire (SSBQ; DiIorio, 1992) to indicate the frequency, on a four-point scale from Never to Always, with which they utilized safer sex behaviors across all their sexual encounters, such as learning about a partner's sexual history and avoiding sexual activity when intoxicated. The SSBQ was adapted in the present study to make sure the language was relevant to sexual encounters between men and showed good reliability ($M = 2.591$, $SD = 0.407$, *Range* $= 1$-4, Cronbach's alpha $= .801$).

Sexual Violence Involvement. Participants completed the sexual intimate partner violence items from the Conflict Tactics Scale, Revised (Straus et al., 1996). The study

used adapted versions of three items (e.g., "used threats to make me have oral or anal sex"; Stephenson et al., 2011) to capture lifetime experiences of both victimization and perpetration. For affirmative responses, participants were also asked to indicate whether they first perpetrated or were victimized at "age 14 or younger", "when I was 15 to 17", or "at age 18 or older" (Hequembourg et al., 2011).

Romantic Relationship Quality. Participants completed the Gay and Lesbian Relationship Satisfaction Scale (Belous & Wampler, 2016), a 24-item measure with subscales for Relationship Satisfaction and Social Support. Participants indicated on a seven-point Likert scale how much they agreed with statements such as "My partner and I share the same values and goals in life." This scale has been thoroughly psychometrically reviewed and found to be a reliable and valid measure of relationship quality among sexual minority samples (Belous & Wampler, 2016; Sommantico et al., 2019). It also demonstrated good reliability in the present sample ($M = 4.779$, $SD = 0.755$, $Range = 1$-7, Cronbach's alpha $= .801$).

Investment in Sexual Agreement. The Sexual Agreement Investment Scale (Neilands et al., 2010) was developed to measure satisfaction, commitment, and valuation of the agreement a dyad has made regarding sexual behaviors outside the relationship. Participants indicated on a five-point Likert scale from "Not at all" to "Extremely" their response to questions such as "How much does your current agreement matter to you?" This measure has shown high reliability (Neilands et al., 2010) and been used repeatedly with sexual minority men samples (Rios-Spicer et al., 2019); it demonstrated excellent reliability in this sample ($M = 4.283$, $SD = 0.778$, $Range = 1$-5, Cronbach's alpha $= .957$).

Heterosexual Self-Presentation. The Masculine Consciousness Scale

(Taywaditep, 2002), which measures the extent to which sexual minority men think about

how masculine and straight-acting they appear to others. Participants indicated how true

for them, on a five-point Likert scale, were a series of seventeen statements about their

relationship to masculine self-presentation (e.g., "I want to be thought of as a regular,

down-to-earth, masculine guy"). This scale has also shown excellent reliability in sexual

minority men (e.g., Sanchez et al., 2016) and did so in this sample as well (M = 2.632, SD

= 0.987, $Range$ = 1-5, Cronbach's alpha = .962).

Dating App Usage. Frequency and duration of dating app usage were assessed

using methods from prior research with sexual minority men (i.e., Badal et al., 2018;

Goedel & Duncan, 2015). Participants indicated their reasons for using dating apps,

picking from a list (e.g., "To find someone to date") (Zervoulis et al., 2020).

Abusive Behaviors from Partners on Dating Apps. The Technology Facilitated

Sexual Violence Victimization (Powell & Henry, 2019), which encompasses several

domains of coercive and abusive behaviors perpetrated online, was used to assess

whether participants had experienced victimization on dating apps. Due to survey length,

only items from the image-based sexual abuse (sample item: "Nude or semi-nude image

taken without permission") and sexual aggression and/or coercion (sample item:

"Someone threatened to post a nude image of you online") subscales were included in the

survey.

Implicit Pro-Heterosexual Bias. In this study, participants completed the most

commonly used measure of implicit bias, the Implicit Association Test (IAT; Greenwald

et al., 1998). This test measures participants' response speed and accuracy in categorizing

different concepts or constructs. Across five rounds, participants are instructed to quickly and accurately choose words, symbols, or images that have a valence (i.e., good or bad) or a category (i.e., Black or White). In the first two rounds, they are asked to choose based on only one quality; for example, the target words "Black" and "White" are displayed in opposite upper corners of the screen, and the participant is asked to categorize each new word that appears in the middle of the screen as pertaining to either the "Black" or "White" category. If a Black woman's face appears on the screen, for example, the participant is expected to press the key on the keyboard that they have been told corresponds with the target word on the left (i.e., "Black"). The same procedure is then done with the categories of "good" or "bad" in the upper corners. In the third round, racial categories and valence both appear on the screen. For example, "Black" may be paired with "good" and "White" may be paired with "bad", such that the same response key is used for Black faces and "good" words and a different response key is used for both White faces and "bad" words. The fourth round mirrors the first two rounds but reverses the order of the words at the top of the screen – for example, Black and White are now in the opposite order at the top of the screen. Finally, the fifth round displays the opposite pairs from the third round (i.e., pairing "Black" and "bad", "White" and "good").

The expectation is that, in the crucial third and fifth rounds, participants will more quickly and accurately categorize words and faces associated with either "Black" and "bad" when those two words are paired together on the screen, relative to their quickness and accuracy in categorizing words when "Black" faces are paired with "good". This would reflect an anti-Black implicit bias, in line with societal norms that associate

Blackness with negative character traits. Similarly, participants might be expected to show a pro-White bias, in which case they would be quickest in making associations with "White" and "good" when the words "White" and "good" are displayed in the same corner of the screen.

One of the primary IATs developed by Project Implicit, the Sexuality IAT, has been taken by millions of people worldwide and measures implicit associations of gay/lesbian and straight with good and bad (Nosek et al., 2007). In this task, participants would show a pro-heterosexual bias if they were quickest and most accurate in categorizing stimuli as "Heterosexual" or "good" when those two words were shown together in the same corner of the screen. Stimuli in the Sexuality IAT include positively and negatively valenced words such as "beautiful" and "awful", as well as images of same-gender and different-gender couples. In an analysis that related all the IATs to 25 different outcome variables, controlling for self-report of biases, the Sexuality IAT emerged as one of the most reliable predictors, showing consistent incremental predictive validity (Buttrick et al., 2020). Therefore, we had reason to believe that participants' Sexuality IAT scores would emerge as a significant correlate of the outcomes under consideration here.

In this study, participants completed the standardized Sexuality IAT, which generates a single difference score with values between –2 (reflecting a strong preference for sexual minority individuals) and +2 (reflecting a strong preference for heterosexual individuals) (Hubachek et al., 2023). This difference score was entered as an outcome variable in Hypothesis 4a and a predictor variable in Hypothesis 4b.

Analysis Plan

Analyses (see Table 3 below) were conducted in SPSS (Version 28.0). Linear regression analyses were conducted for all hypotheses, except for the exploratory analyses, with the goal of determining when and how educational experiences and pornography viewing behaviors are associated with romantic and sexual quality. For example, in hypothesis 4a, the IAT difference score and internalized heterosexism score were entered as the outcomes in separate linear regressions to see if the degree to which participants report their experiences of learning about sex and relationships were helpful and affirming significant predicts pro-heterosexual implicit and explicit bias. For hypothesis 4b, the IAT difference score and the internalized heterosexism score were entered as predictors of relationship satisfaction in a linear regression. For the exploratory analyses in Aim 2, descriptive statistics will be used to describe patterns of how and where participants reported acquiring affirming and helpful sexual and romantic education.

Table 3. Variables used in linear regressions across each study hypothesis. Correlations among study variables can be found in Supplemental Table 1 in the Appendix.

Hypothesis	Dependent Variables	Independent Variables	Covariates
1a	Romantic relationship quality; investment in sexual agreement with partner	Solitary pornography viewing	Shared pornography viewing
1b	Romantic relationship quality; investment in sexual agreement with partner	Affirming and helpful learning experiences (composite variable)	Homonegative school climate
2a	Sexual consent behaviors; involvement in sexual violence; safe sex practices	Solitary pornography viewing	Shared pornography viewing

2b	Sexual consent behaviors; involvement in sexual violence; safer sex behaviors	Affirming and helpful learning experiences (composite variable)	Homonegative school climate
3a	Heterosexual self-presentation	Affirming and helpful learning experiences (composite variable)	Homonegative school climate
3b	Abusive behaviors from dating app partners	Affirming and helpful learning experiences (composite variable)	Dating app use frequency and reasons; homonegative school climate
4a	Explicit homophobic and implicit pro-heterosexual biases	Affirming and helpful learning experiences (composite variable)	Homonegative school climate
4b	Relationship satisfaction	Explicit homophobic and implicit pro-heterosexual biases	

Note: Age was included as a covariate in all analyses as well.

Chapter Three: Results

Data were collected from 310 men, all of whom were recruited through the CloudResearch platform. Participants were 36.77 years old on average ($SD = 12.31$). Although only participants who listed a sexual orientation other than heterosexual in their CloudResearch profiles were eligible to participate in the study, 31 of the 310 participants self-identified as heterosexual/straight in the study; those who identified as exclusively heterosexual ($N = 26$) were excluded from analyses. Two respondents identified as asexual and were also not included in analyses, leaving a total of 282 participants. Participants included in the analytic sample identified primarily as gay ($N = 121$, 42.91%) or bisexual ($N = 153$, 54.26%), while a few identified as queer ($N = 16$, 5.67%) or pansexual ($N = 15$, 5.32%), and four participants indicated they preferred not to answer or identified with a different label.

Regarding ethnicity, 20.8% of the sample identified as Hispanic or Latino. Regarding racial identity, 9.2% of the sample identified as Black or African American, 2.5% as American Indian or Alaska Native, 6.3% as East Asian, 1.1% as South Asian, 0.7% as Middle Eastern or North African, 0.4% as Native Hawaiian or Pacific Islander, and 82.0% as White; 3.9% indicated their preferred racial category was not listed.

Regarding education, the sample was highly educated, with the modal highest level of education earned being a bachelor's degree (29.5% of the sample), followed by a master's or advanced degree (22.8%) and "some college, but no degree" (20.0%). No

participants indicated having less than a high school diploma or a GED. Regarding

income, the most common ranges of monthly income reported were $3000-4000 (15.4%),

$1000-2000 (13.7%), and $2000-3000 and $4000-5000 (both 12.6% of the sample).

Twelve participants (4.2%) indicated no earnings in the last month, while 22 (7.7%)

indicated earning more than $10,000 in the last month.

Hypothesis 1a: Pornography Viewing and Relationship Variables

Linear regressions were conducted to see if rates of solitary pornography viewing,

controlling for shared pornography viewing and age, would be negatively associated with

romantic relationship satisfaction and with investment in an agreement regarding sexual

boundaries. Almost all (94.3%) of the sample reported watching pornography on their

own at least once in the past year; 52.6% said they watched several times a week or more.

Regarding watching pornography with their partner, 56.7% of the sample indicated

having done so at least once in the past year. Most (83.9%) of the sample indicated

having a formal sexual agreement with their partner, and most (68.5%) of these

participants indicated that sexual exclusivity was their agreement type.

The regression for relationship satisfaction was statistically significant ($F(3,268) = 4.829$,

$p = .003$), while the regression for investment in a sexual agreement was not ($F(3,226) =$

1.435, $p = .233$). Contrary to the hypothesis, participants' solitary pornography viewing

did not predict their relationship satisfaction, but their age ($B = -.011$, $p = .004$)

negatively predicted relationship satisfaction, while their rates of shared pornography

viewing ($B = .012$, $p = .015$) positively predicted relationship satisfaction (see Table 4).

There were no significant predictors of investment in a sexual agreement (see Table 5).

Table 4. Linear regression of relationship satisfaction on solitary pornography viewing, shared pornography viewing, and age.

	B	Standard Error	Standardized B	t-value	Sig.
Constant	5.126	.155		33.078	<.001
Solitary viewing	-.003	.005	-.032	-.512	.609
Shared viewing	.012	.005	.154	2.441	.015
Age	-.011	.004	-.175	-2.944	.004

Table 5. Linear regression of investment in relationship agreement on solitary pornography viewing, shared pornography viewing, and age.

	B	Standard Error	Standardized B	t-value	Sig.
Constant	4.396	.181		24.219	<.001
Solitary viewing	.004	.006	.047	.670	.503
Shared viewing	-.011	.006	-.138	-1.953	.052
Age	-.002	.004	-.029	-.443	.658

Hypothesis 1b: Quality of Learning Experiences and Relationship Variables

Hypothesis 1b was that participants' reports of helpful and affirming sources of sexual and romantic education (hereafter referred to as "quality of learning experiences") would predict higher romantic relationship satisfaction and investment in an agreement regarding sexual boundaries. Neither of these predictions were supported. While the regression analysis for relationship satisfaction was significant ($F(3,266) = 2.705$, $p = .046$), only age was a significant predictor of relationship satisfaction (see Table 6). The regression for investment in a sexual agreement was not significant ($F(3,224) = .346$, $p = .792$), and none of the predictors were associated with investment in a sexual agreement (see Table 7).

Table 6. Linear regression of relationship satisfaction on quality of learning experiences, homonegative school climate, and age.

	B	Standard Error	Standardized B	t-value	Sig.

	B	Standard Error	Standardized B	t-value	Sig.
Constant	5.299	.220		24.137	<.001
Composite variable	-.062	.050	-.074	-1.230	.220
Age	-.009	.004	-.151	-2.498	.013
School climate	.012	.029	.025	.406	.685

Table 7. Linear regression of investment with relationship agreement on quality of learning experiences, homonegative school climate, and age.

	B	Standard Error	Standardized B	t-value	Sig.
Constant	4.481	.254		17.667	<.001
Composite variable	-.003	.056	-.004	-.061	.951
Age	-.005	.005	-.067	-1.002	.318
School climate	-.007	.032	-.014	-.216	.829

Hypothesis 2a: Pornography Viewing and Sexual Behaviors

It was predicted that participants' solitary pornography viewing would be (a) negatively associated with sexual consent self-efficacy and use of active sexual consent behaviors; (b) positively associated with involvement in sexual violence; and (c) negatively associated with safe sex practices. Separate regressions are reported for the three subscales of the sexual consent scale, as well as for sexual victimization and perpetration. Over a third of participants (35.5%) had been sexually victimized in at least one way, and 20.0% of participants had perpetrated at least one form of sexual violence.

The regression analysis for ongoing consent behaviors was statistically significant ($F(3,269) = 6.306$, $p < .001$; see Table 8); contrary to expectations, more solitary pornography viewing predicted more use of ongoing consent behaviors ($B = .015$, $p = .038$). Age significantly and negatively predicted use of ongoing consent behaviors ($B = -.020$, $p < .001$). The regression for participants' subtle coercion in consent was also significant ($F(3,268) = 6.433$, $p < .001$), but solitary pornography viewing did not predict

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subtle coercion (see Table 9). By contrast, both frequency of shared pornography ($B =$

.030, $p = .002$) and age ($B = .021$, $p = .003$) were positively associated with subtle

coercion. The regression for communicative sexuality was also significant ($F(3,269) =$

5.221, $p < .001$; see Table 10). Counter to expectations, solitary pornography viewing did

not predict communicative sexuality, while shared pornography viewing predicted more

communicative sexuality ($B = .014$, $p = .037$) and age predicted less ($B = -.015$, $p =$

.001).

Table 8. Linear regression of ongoing consent on solitary pornography viewing, shared
pornography viewing, and age.

	B	Standard Error	Standardized B	t-value	Sig.
Constant	6.289	.224		28.038	<.001
Solitary viewing	.015	.007	.131	2.086	.038
Shared viewing	-.004	.007	-.038	-.602	.548
Age	-.020	.005	-.229	-3.887	<.001

Table 9. Linear regression of subtle coercion on solitary pornography viewing, shared
pornography viewing, and age.

	B	Standard Error	Standardized B	t.	Sig.
Constant	1.879	.297		6.326	<.001
Solitary viewing	-.016	.009	-.105	-1.683	.094
Shared viewing	.030	.010	.193	3.085	.002
Age	.021	.007	.180	3.041	.003

Table 10. Linear regression of communicative sexuality on solitary pornography viewing,
shared pornography viewing, and age.

	B	Standard Error	Standardized B	t-value	Sig.
Constant	5.900	.198		29.742	<.001
Solitary viewing	.006	.006	.058	.930	.353
Shared viewing	.014	.007	.131	2.097	.037

Age	-.015	.005	-.196	-3.318	.001

The regression analysis for safe sex behaviors was not significant ($F(3,268) =$ 1.302, $p = .274$; see Table 11). By contrast, the regression analyses for experiences of sexual violence victimization ($F(3,269) = 3.392$, $p = .019$) and sexual violence perpetration ($F(3,269) = 6.700$, $p < .001$) were significant (see Tables 12 and 13). Rates of solitary pornography viewing were significantly and negatively associated with rates of sexual violence perpetration ($B = -.011$, $p = .010$). As participants reported more shared pornography viewing, they reported more sexual violence victimization ($B = .017$, $p = .003$) and sexual violence perpetration ($B = .018$, $p < .001$).

Table 11. Linear regression of safe sex behaviors on solitary pornography viewing, shared pornography viewing, and age.

	B	Standard Error	Standardized B	t-value	Sig.
Constant	2.597	.087		29.887	<.001
Solitary viewing	-.005	.003	-.106	-1.641	.102
Shared viewing	.004	.003	.097	1.504	.134
Age	.001	.002	.028	.460	.646

Table 12. Linear regression of experiences of sexual victimization on solitary pornography viewing, shared pornography viewing, and age.

	B	Standard Error	Standardized B	t-value	Sig.
Constant	.672	.176		3.806	<.001
Solitary viewing	-.006	.006	-.071	-1.115	.266
Shared viewing	.017	.006	.188	2.965	.003
Age	-.005	.004	-.072	-1.205	.229

Table 13. Linear regression of experiences of sexual perpetration on solitary pornography viewing, shared pornography viewing, and age.

	B	Standard Error	Standardized B	t-value	Sig.
Constant	.255	.128		1.990	.048

Solitary viewing	-.011	.004	-.162	-2.587	.010
Shared viewing	.018	.004	.269	4.307	<.001
Age	.001	.003	.016	.264	.792

Hypothesis 2b: Quality of Learning Experiences and Sexual Behaviors

I hypothesized that the quality of participants' learning experiences would be (a) positively associated with use of sexual consent and sexual consent self-efficacy; (b) positively associated with safe sex practices; (c) negatively associated with sexual violence involvement; (d) positively associated with agreement about sexual relationship boundaries. I first present the results for the three subscales of the sexual consent scale. The linear regression for use of ongoing consent practices was significant ($F(3,267) =$ 5.796, $p < .001$), but quality of learning experiences was not a significant predictor (see Table 14). Age, however, was negatively associated ($B = -.019$, $p < .001$) with use of ongoing consent behaviors. The linear regression for subtle coercion was also significant ($F(3,266) = 12.142$, $p < .001$; see Table 15). In support of my hypothesis, quality of learning experiences was negatively associated with use of subtle coercion ($B = -.422$, $p < .001$); a more homonegative school climate was associated with less subtle coercion ($B = -.119$, $p = .026$), while age was positively associated with subtle coercion ($B = .022$, $p < .001$). Finally, the regression for the communicative sexuality subscale was significant as well ($F(3,267) = 6.303$, $p < .001$; see Table 16). Contrary to expectations, quality of learning experiences was negatively associated with communicative sexuality ($B = -.140$, $p = .028$). The school climate variable predicted more communicative sexuality ($B = .084$, $p = .022$), while age was negatively associated with communicative sexuality ($B = -.013$, $p = .006$).

Table 14. Linear regression of ongoing consent on quality of learning experiences, homonegative school climate, and age.

	B	Standard Error	Standardized B	t-value	Sig.
Constant	6.448	.318		20.305	<.001
Composite variable	-.058	.072	-.047	-.797	.426
School climate	.077	.042	.110	1.852	.065
Age	-.019	.005	-.210	-3.539	<.001

Table 15. Linear regression of subtle coercion on quality of learning experiences, homonegative school climate, and age.

	B	Standard Error	Standardized B	t-value	Sig.
Constant	3.403	.405		8.403	<.001
Composite variable	-.422	.092	-.263	-4.569	<.001
School climate	-.119	.053	-.129	-2.238	.026
Age	.022	.007	.184	3.190	.002

Table 16. Linear regression of communicative sexuality on quality of learning experiences, homonegative school climate, and age.

	B	Standard Error	Standardized B	t-value	Sig.
Constant	6.269	.278		22.538	<.001
Composite variable	-.140	.063	-.131	-2.209	.028
School climate	.084	.037	.137	2.312	.022
Age	-.013	.005	-.166	-2.795	.006

The linear regression predicting safe sex behaviors was not significant ($F(3,266)$ = 1.093, p = .353; see Table 17). The linear regression for experiences of sexual victimization was significant ($F(3,267) = 3.799$, $p = .011$), but only school climate predicted experiences of sexual victimization ($B = 1.03$, $p < .002$; see Table 18). The linear regression for experiences of sexual perpetration was not significant ($F(3,267) =$ 2.357, $p = .072$; see Table 19).

Table 17. Linear regression of safe sex behaviors on quality of learning experiences, homonegative school climate, and age.

	B	Standard Error	Standardized B	t-value	Sig.
Constant	2.585	.123		21.097	<.001
Composite variable	-.026	.028	-.056	-.920	.359
School climate	.024	.016	.092	1.508	.133
Age	.001	.002	.030	.492	.623

Table 18. Linear regression of experiences of sexual victimization on quality of learning experiences, homonegative school climate, and age.

	B	Standard Error	Standardized B	t-value	Sig.
Constant	.330	.248		1.328	.185
Composite variable	.038	.057	.040	.665	.506
School climate	.103	.033	.189	3.152	.002
Age	-.004	.004	-.051	-.856	.393

Table 19. Linear regression of experiences of sexual perpetration on quality of learning experiences, homonegative school climate, and age.

	B	Standard Error	Standardized B	t-value	Sig.
Constant	.533	.185		2.888	.004
Composite variable	-.110	.042	-.158	-2.612	.010
School climate	.008	.024	.019	.318	.751
Age	.001	.003	.026	.433	.665

Aim 2 Exploratory Analyses Related: Relating Sources to Topics

As noted in the Introduction, while prior studies have begun to identify the frequency with which sexual minority youth report learning about sexual health from different sources (e.g., Mata et al., 2021), it is less clear *which topics they learn about where*. Exploratory analyses to address this topic consisted of (1) determining the percentage of participants who learned about sex and relationships from each source (see Table 20); (2) calculating the percentage of participants who learned about each topic

from each source (see Table 21); and (3) reporting the means of helpfulness vs. hurtfulness for each topic within each source (see Table 22).

Table 20 reports the percentage of participants who indicated they had learned anything related to sex and relationships from each source prior to and after turning 18 years old. Relatively few participants reported learning from religious institutions (11.4%) and dating apps (15.1%) prior to turning 18; by contrast, learning from school (80.0%), peers (81.8%), and pornography (81.3%) were the most common experiences at this age. After turning 18, participants were most likely to learn from romantic and sexual partners (93.0%), pornography (86.4%), and personal research on the Internet (85.9%), and least likely to learn from religious institutions (7.0%), parents or guardians (16.3%), and schools (17.7%).

Table 20. Percentage of participants who reported learning about sex and relationships from each source before and after age 18.

Source	Before Age 18 N (%)			After Age 18 N (%)		
	Yes	No	Not sure	Yes	No	Not sure
School	220 (80.0)	45 (16.5)	8 (2.9)	48 (17.7)	221 (81.5)	2 (0.7)
Religious institutions	31 (11.4)	235 (86.4)	6 (2.2)	19 (7.0)	249 (91.9)	3 (1.1)
Parents / guardians	130 (47.6)	135 (49.5)	8 (2.9)	44 (16.3)	225 (83.3)	1 (0.4)
Peers	220 (81.8)	46 (17.1)	3 (1.1)	211 (78.1)	57 (21.1)	2 (0.7)
Partners	180 (66.4)	87 (32.1)	4 (1.5)	253 (93.0)	18 (6.6)	1 (0.4)
Popular media	213 (78.3)	53 (19.5)	6 (2.2)	203 (75.2)	66 (24.4)	1 (0.4)
Personal research on the Internet	206 (75.7)	64 (23.5)	2 (0.7)	232 (85.9)	37 (13.7)	1 (0.4)
Social media	105 (38.6)	161 (59.2)	6 (2.2)	174 (64.9)	93 (34.7)	1 (0.4)
Dating apps	41 (15.1)	224 (82.7)	6 (2.2)	126 (46.7)	139 (51.5)	5 (1.9)

Pornography	221 (81.3)	45 (16.5)	6 (2.2)	235 (86.4)	36 (13.2)	1 (0.4)

Table 21 displays the percentages of participants who learned about each of the

seven topics from each source. Some notable trends emerged. Participants were more

likely to learn about the topic of consent and healthy relationships and the topic of gender

identity and expression from online sources than they were to learn about them from

offline sources. Schools provided information about gender identity and expression,

sexual orientation and identity, and interpersonal violence at some of the lowest rates, but

were the most consistent sources of information for anatomy and physiology and for

puberty and sexual development. Dating apps emerged as being a place many participants

learned about consent and healthy relationships, as well as sexual orientation and identity,

but they were less likely to provide information about both anatomy and physiology and

puberty and sexual development.

Table 21. Percentage of participants indicating they learned about each topic from each
source.

	SCH	RI	PAR	PRS	PART	POP	INT	SOC	DAT	PRN
CHR	82.4	86.8	82.5	88.5	95.4	96.6	94.7	96.2	94.6	85.7
AP	98.3	84.2	86.9	88.1	90.1	86.0	97.5	86.6	77.7	91.8
PSD	98.7	89.5	92.7	84.0	71.4	88.5	91.0	76.9	64.3	61.9
GIE	67.0	81.6	70.1	82.7	85.5	91.9	94.7	97.8	86.0	78.9
SOI	73.1	89.5	74.8	93.4	95.8	96.2	100	98.9	97.7	95.4
SH	95.6	92.1	85.4	86.8	91.6	91.1	97.5	93.0	90.8	79.8
IV	74.3	84.2	75.2	80.2	79.4	95.3	91.8	95.2	82.9	73.0

Note: SCH = schools; RI = religious institutions; PAR = parents; PRS = peers;
PART = sexual and romantic partners; POP = popular media; INT = personal
research on the Internet; SOC = social media; DAT = dating apps; PRN =
pornography; CHR = consent and healthy relationships; AP = anatomy and
physiology; PSD = puberty and sexual development; GIE = gender identity and
expression; SOI = sexual orientation and identity; SH = sexual health; IV =
interpersonal violence

Finally, Table 22 displays the average helpfulness versus hurtfulness of each source for each of the seven topics under consideration. Participants rated the effectiveness of each source on each separate topic on a seven-point Likert scale from "extremely hurtful" to "extremely helpful", with "neither hurtful nor helpful" in the middle. Mean scores ranged from a 3.50 average rating for pornography as a source of information about consent and healthy relationships, to a 6.10 average rating for personal research on the Internet as a source of information about sexual orientation and identity. Taking the mean of the helpfulness versus hurtfulness of each source (which can be found in the bottom row of Table 22), I find that pornography is rated as least helpful overall (M = 4.10 across all seven topics), while personal research on the Internet is rated as most helpful (M = 5.82 across all seven topics). This difference is statistically significant, with a large effect size (t(167) = 12.763, $p < .001$, Cohen's d = 0.99). The rightmost column in Table 22 depicts the average helpfulness across all sources for each topic; these numbers might be considered to reflect how effective participants perceive their overall education on each topic. The highest average is for sexual orientation and identity (M = 5.12) and the lowest is for consent and healthy relationships (M = 4.76); this is also a statistically significant difference, albeit with a smaller effect size (t(98) = -2.601, p = .005, Cohen's d = -0.26).

Table 22. Average helpfulness versus hurtfulness of each source across seven sex and relationship education topics.

	SCH M (SD)	REL M (SD)	PAR M (SD)	PEER M (SD)	PRT M (SD)	POP M (SD)	INT M (SD)	SOC M (SD)	DAT M (SD)	PORN M (SD)	TOP M (SD)
CHR	5.05 (1.37)	4.61 (1.87)	5.19 (1.45)	5.10 (1.35)	5.78 (1.41)	4.45 (1.43)	5.61 (1.30)	4.79 (1.51)	4.58 (1.54)	3.50 (1.66)	4.76 (1.24)

	SCH	REL	PAR	PEER	PRT	POP	INT	SOC	DAT	PORN	TOP
AP	5.61	4.66	4.86	4.89	5.75	4.44	5.85	4.60	4.48	4.84	5.07
	(1.25)	(1.79)	(1.45)	(1.29)	(1.31)	(1.40)	(1.19)	(1.44)	(1.43)	(1.80)	(1.05)
PSD	5.61	4.53	4.98	4.81	5.05	4.54	5.69	4.55	4.12	3.98	5.03
	(1.25)	(1.73)	(1.44)	(1.29)	(1.42)	(1.30)	(1.22)	(1.44)	(1.49)	(1.71)	(1.09)
GIE	4.08	3.97	4.38	5.07	5.55	4.67	5.76	5.04	4.78	4.47	4.94
	(1.60)	(1.89)	(1.71)	(1.60)	(1.37)	(1.48)	(1.25)	(1.54)	(1.42)	(1.62)	(1.11)
SOI	4.29	4.50	4.44	5.22	5.93	4.91	6.10	5.21	5.18	5.13	5.12
	(1.51)	(2.02)	(1.74)	(1.58)	(1.25)	(1.60)	(1.11)	(1.66)	(1.34)	(1.66)	(1.10)
SH	5.40	4.57	5.15	5.07	5.62	4.72	5.97	4.80	4.84	3.87	5.08
	(1.39)	(1.96)	(1.41)	(1.44)	(1.27)	(1.42)	(1.14)	(1.54)	(1.48)	(1.70)	(1.11)
IV	4.79	4.53	5.01	5.04	5.29	4.68	5.72	4.95	4.51	3.59	5.03
	(1.36)	(1.68)	(1.44)	(1.40)	(1.50)	(1.45)	(1.21)	(1.48)	(1.34)	(1.75)	(1.16)
SRC	4.98	4.53	4.87	4.99	5.55	4.65	5.82	4.83	4.57	4.19	
	(1.08)	(1.39)	(1.26)	(1.17)	(1.04)	(1.18)	(1.02)	(1.33)	(1.22)	(1.46)	

Note: SCH = school; REL = religious institution; PAR = parents; PEER = peers; PRT = partners; POP = popular media; INT = internet research; SOC = social media; DAT = dating apps; PORN = pornography; TOP = average for each topic across all sources; CHR = consent and healthy relationships; AP = anatomy and physiology; PSD = puberty and sexual development; GIE = gender identity and expression; SOI = sexual orientation and identity; SH = sexual health; IV = interpersonal violence; SRC = average for each source across all topics.

Research Question 3a: Quality of Learning Experiences and Masculine Self-Presentation

This research question explored whether participants' focus on masculine self-presentation would be related to the quality of their learning experiences. The linear regression (see Table 23) of masculine self-presentation on quality of learning experiences, homonegative school climate, and age was not significant ($F(3,265) = 1.695$, $p = .168$).

Table 23. Linear regression of masculine consciousness on quality of learning experiences, homonegative school climate, and age.

	B	Standard Error	Standardized B	t-value	Sig.
Constant	2.767	.288		9.591	<.001
Composite variable	-.097	.066	-.090	-1.477	.141
School climate	.064	.038	.104	1.698	.091
Age	.000	.005	.002	.033	.974

Research Question 3b: Quality of Learning Experiences and Abuse on Dating Apps

I also sought to determine whether participants' experiences with sexual abuse from partners on dating apps would be related to their access to the quality of their learning experiences. Less than half of participants ($N = 144$, 46.3%) had ever used a dating app, and just over half of those participants were currently using at least one dating app ($N = 73$, 50.3%). To preserve statistical power, therefore, current dating app behaviors and reasons for use were not included in analyses as originally planned. While the regression analysis was significant ($F(3,132) = 3.502$, $p = .017$), only age emerged as a significant predictor of experiences of dating app victimization ($B = -.031$, $p = .012$; see Table 24).

Table 24. Linear regression of dating app victimization (i.e., image-based sexual abuse) on quality of learning experiences, homonegative school climate, and age.

	B	Standard Error	Standardized B	t-value	Sig.
Constant	2.800	.735		3.807	<.001
Composite variable	-.281	.172	-.137	-1.630	.106
School climate	.097	.097	.084	1.002	.318
Age	-.031	.012	-.214	-2.552	.012

Hypothesis 4a: Quality of Learning Experiences and Implicit and Explicit Biases

Per standard interpretation of IAT scores (Sriram & Greenwald, 2009), participants exhibited a slight implicit pro-heterosexuality bias on the IAT on average ($M = 0.229$, $SD = 0.466$). Their scores on the measure of explicit internalized homophobia were relatively low ($M = 2.535$, $SD = 1.502$, $Range = 1$-7; lower scores indicate less explicit bias). I hypothesized that participants' pro-heterosexual implicit and homophobic explicit biases would be weaker as they reported better quality of their learning

experiences about sex and relationships. Neither the regression for implicit bias ($F(3,255)$ = 1.629, p = .183) nor the regression for explicit bias ($F(3,267)$ = 1.472, p = .223) was statistically significant (see Tables 25 and 26).

Table 25. Linear regression of implicit pro-heterosexuality bias on quality of learning experiences, homonegative school climate, and age.

	B	Standard Error	Standardized B	t-value	Sig.
Constant	.236	.142		1.663	.098
Composite variable	.018	.033	.035	.559	.577
School climate	-.040	.019	-.134	-2.150	.032
Age	.000	.002	-.012	-.196	.845

Table 26. Linear regression of explicit homophobic bias on quality of learning experiences, homonegative school climate, and age.

	B	Standard Error	Standardized B	t-value	Sig.
Constant	3.060	.441		6.941	<.001
Composite variable	-.153	.101	-.092	-1.522	.129
School climate	-.084	.058	-.088	-1.443	.150
Age	.001	.007	.005	.076	.940

Hypothesis 4b: Implicit and Explicit Bias and Relationship Satisfaction

Greater pro-heterosexual implicit and homophobic explicit biases were predicted to be associated with less relationship satisfaction. This hypothesis was supported ($F(3,258)$ = 15.004, p < .001). In the regression model (see Table 27), implicit bias (B = -.249, p = .001), explicit bias (B = -.131, p < .001), and age (B = -.011, p = .002) all negatively predicted relationship satisfaction. Implicit and explicit bias were weakly but significantly correlated with each other (r = .272, p < .001).

Table 27. Linear regression of relationship satisfaction on explicit homophobic bias, implicit pro-heterosexuality bias, and age.

	B	Standard Error	Standardized B	t-value	Sig.
Constant	5.550	.150		36.944	<.001
Implicit bias	-.249	.094	-.158	-2.641	.009
Explicit bias	-.131	.030	-.262	-4.376	<.001
Age	-.011	.003	-.180	-3.127	.002

Following completion of these analyses, additional moderation analyses were run

for each hypothesis, using the PROCESS macro (Hayes, 2017), to separately test for

differences by sexual orientation (gay versus bisexual), monogamous versus non-

monogamous, and married versus unmarried status. Only one significant moderation

effect was found across all these analyses: the interaction between marital status and

quality of learning experiences significantly predicted coercive behaviors in consent,

such that married individuals, but not unmarried ones, showed a negative association

between quality of learning experiences and coercive behaviors in consent ($b = -0.71$, $p =$

.019).

Chapter Four: Discussion

In this section, I contextualize the findings from the Results section, considering implications of the supported and unsupported hypotheses separately and in order, and then in relationship with each other in a general discussion. Subheadings organize the outcomes by independent variables as well (i.e., pornography viewing versus affirming and helpful learning experiences).

Relationship Satisfaction and Investment in Sexual Agreements

Pornography viewing. Contrary to my expectations, solitary pornography viewing predicted neither relationship satisfaction nor participants' investment in their sexual agreements. The lack of an association between sexual minority men's solitary pornography viewing and their relationship satisfaction adds nuance to one of the most reliable research findings at the intersection of relationship science and pornography research – namely, that the frequency with which men watch pornography on their own is inversely related to the quality of their romantic relationships (Huntington et al., 2021; Perry, 2020). To date, minimal research has considered whether this pattern is consistent across men's sexual identities. The only prior study to directly link pornography viewing to relationship quality among sexual minority men found a negative association between relationship satisfaction and problematic pornography use specifically (Sommantico et al., 2021). Therefore, these results are novel and merit further contemplation.

This difference across sexual orientations (i.e., heterosexual versus sexual minority men) is likely due in part to variability across study designs and samples, but could also be attributable to differences in the content of the pornography they watch. Sexual scripts theory suggests that sexual and relational scripts are acquired and reinforced when watching pornography (Kvalem et al., 2016; Simon & Gagnon, 1986). Content analyses of heterosexual pornography routinely find high rates of physical and verbal aggression and low rates of demonstrations of affection (Miller & McBain, 2022; Seida & Shor, 2021); by contrast, videos featuring men having sex with men may feature more demonstrations of affection (Seida & Shor, 2021). Thus, it is possible that the pornography participants in this study are watching is modeling behaviors that could enhance, rather than detract from, relational intimacy.

Given the high prevalence of pornography viewing among sexual minority men (Downing et al., 2017) and how sexual minority men often report learning important aspects of both how to be sexual and how to relate from pornography (Arrington-Sanders et al., 2015; Attwood et al., 2018; Kubicek et al., 2010), another potential explanation is that, unlike heterosexual individuals, sexual minority men are more likely to be concordant with their partners in the sexual scripts they are receiving from pornographic media (Kohut et al., 2021). Furthermore, since pornography use is generally socially accepted in sexual minority communities (Morrison et al., 2007), the men in this sample may experience less conflict with their partners about both their solitary viewing behaviors and possibly incorporating behaviors from pornography into their sexual repertoire together. Additionally, sexual minority men may have less difficulty than

people in heterosexual relationships in disclosing about their solitary viewing behaviors (Miller et al., 2020).

In contrast to the finding regarding watching pornography alone, participants' watching pornography with their partners was significantly and positively associated with relationship quality. In this regard, this sample of sexual minority men aligns with people engaged in heterosexual relationships, for whom a positive association has repeatedly been found between their shared pornography viewing and their sexual and relationship quality (Hertlein et al., 2020; Huntington et al., 2021; Vaillancourt-Morel et al., 2019). Prior researchers (e.g., Kohut et al., 2018) have proposed that watching pornography together is an occasion for partners to learn each other's sexual preferences and desires, as well as share novel and arousing experiences, and that this increased disclosure and intimacy (Reis & Shaver, 1988) should translate into better relationship and sexual outcomes. Watching the same content together may also cause partners' sexual scripts and arousal templates to merge or overlap more over time (Simon & Gagnon, 1988), which could also increase their satisfaction with the relationship.

No associations were observed in this study between pornography viewing behaviors and investment in the sexual agreement in one's relationship. Investment in a sexual agreement can be conceptualized as a component of overall relationship satisfaction (Neilands et al., 2010), so this attempt to link the two variables represents a novel extension of prior research on pornography viewing and relationship quality. Future analyses, whether using this dataset or with newly collected samples, should also consider whether such an association might exist and be moderated by the nature of the

agreement (e.g., differences across types of non-monogamy; open versus closed relationships).

Quality of learning experiences. The affirmingness and helpfulness of participant's experiences learning about sex and romantic relationships – which, for the sake of brevity, we have been referring to as "quality of learning experiences" – predicted neither their relationship satisfaction nor their investment in their sexual agreements. These null findings contradict the hypotheses, and here we consider (1) the possibility both that there is in fact no correlation between these constructs, and (2) how the methodology used might increase the risk of false negative results.

Despite numerous publications documenting the subjective desire among sexual minority individuals for affirming and identity-relevant sex and relationship education (e.g., Tabaac et al., 2022; Stout et al., 2022), these results would suggest there is no correlation between having learning experiences perceived as useful and affirming and relationship satisfaction in adulthood. One possibility is that there are characteristics or experiences, not captured in this study, that might moderate this potential association. For example, from a social cognitive theory perspective (Bandura, 2001), the mere receipt of useful and affirming information is insufficient; if one lacks a sense of self-efficacy, perhaps because one has not had chances to apply said learning, then all the useful information in the world, however affirmingly delivered, will not translate into effective action and outcomes.

It is possible that dyadic- and partner-specific variables not considered in this study might facilitate or hamper the application of quality learning experiences. The degree of congruence between partners in what they have learned and come to value

might determine how much the men in this sample could act on any useful information they have received. For example, a participant whose education regarding gender identity was empowering and non-prescriptive might be partnered with another man who holds very rigid gender norms; in this context, the advantages of an education they perceive as useful and affirming could be nullified or even be an ingredient in relationship conflict. This is but one example of dyadic dynamics that are not accounted for in these analyses and could explain the lack of an association between the study variables.

It is possible that participants' perceptions of the quality of their learning experiences are not accurate, or reflect a subjective preference for something about their learning experiences that is objectively unrelated to relationship quality. For example, it is possible to learn in ways that one experiences as quite pleasant, or quite unpleasant, without this affective component correlating with the usefulness or effectiveness of the learning.

This null finding could also be attributed to several other methodological choices and limitations in the present project. First of all, the use of a composite variable, taking the average of affirmingness and helpfulness across all sources, means we cannot know if certain sources being more or less helpful or affirming than other sources is actually what drives differences in relationship quality across participants. For example, quality learning experiences with one or two key sources, such as personal research on the Internet or with romantic partners, might more strongly correlate with relationship quality, but could be outweighed in the composite variable by less affirming and helpful experiences with several other sources. As proposed and conducted here, the analyses also do not account for whether participants indicated each source actually taught them

something about relationships; follow-up analyses should look more closely at whether each source's helpfulness with regards to healthy relationships in particular might predict relationship quality.

Combining affirmingness and helpfulness could also obscure their differential associations with relationship quality. It is not clear from prior research how these aspects of learning experiences would be expected to interact. Receiving education that is both salient and affirming is clearly important to sexual minority individuals (Tabaac et al., 2022), but more research is needed to understand how these constructs should be understood as relating to each other. That said, the two variables were highly correlated with each other ($r = .78$) in this sample, suggesting that considering them as separate predictors might not explain too much additional variance.

Relationship satisfaction and investment in sexual agreements were also not predicted by participants' reports of a homonegative school climate, the covariate included in these models. One interpretation of this finding, taken alongside the null findings for quality of learning experiences, is that participants in the study are too far removed chronologically from these learning experiences and environments for them to significantly predict relationship quality. Indeed, as noted in the introduction, the entire enterprise of relying on retrospective reports, while a common practice in surveying sexual minority individuals about their developmental experiences (Bishop et al., 2023; Calzo et al., 2011; Fisher, 2012), may be undercut by participants' privileging certain memories over others, forgetting important experiences altogether, or generally experiencing some fallibility in memory (Catania, 1999; Diamond, 2006; Jaccard et al., 2002).

Consent Behaviors, Safe Sex Behaviors, and Involvement in Sexual Violence

      Pornography viewing and consent behaviors. Research linking pornography viewing to consent behaviors is quite limited at this time (McKee et al., 2021), but a content analysis of popular pornography videos found depictions of explicit consent processes and ongoing consent practices to be rare (Willis et al., 2020). Therefore, the current study breaks new ground by considering how pornography viewing might be related to sexual consent behaviors, especially behaviors understudied in the sexual consent literature and underrepresented in pornography itself (Glace et al., 2021; Willis et al., 2020). It was hypothesized that watching pornography alone would be negatively associated with rates of positive consent behaviors, but there is little prior research on which to base both hypotheses and inferences from the results.

      Analyses of the different subscales of the Process-Based Consent Scale (Glace et al., 2021) revealed differential associations of pornography viewing behaviors with consent behaviors. As participants reported watching more pornography on their own, they indicated using more ongoing consent behaviors (e.g., agreeing with the statement, "If my partner seems less than excited about sex, I will stop and ask if they want to be sexual with me"). In the regression for subtle coercion in consent (e.g. agreeing with the statement, "I would tell a partner that if they cared about me they would have sex with me"), solitary pornography viewing was not a significant predictor, but shared viewing predicted more coercion. Finally, participants scored significantly higher on the communicative sexuality subscale (e.g., agreeing with the statement, "I value ongoing conversations about my and my partner's sexual desires") as they reported watching pornography with their partner more often.

The positive association between solitary pornography viewing and ongoing consent behaviors is counterintuitive, given the relative dearth of clear negotiation of consent depicted in popular pornography videos (Willis et al., 2020). This association could reflect a level of comfort with one's pornography-related arousal template (Kohut et al., 2018); in other words, sexual minority men who regularly watch pornography on their own may be especially in touch what they find desirable and able to articulate that in a consensual way during partnered sex.

The positive association between shared pornography viewing and subtle coercion in consent raises the unfortunately understudied question of how much shared pornography viewing is nonconsensual. For some couples or in some instances, watching pornography together could itself be a coercive behavior. Alternatively, sexual minority men could be watching pornographic content that one partner wants to emulate, but the other does not, with the resulting conflict involving some degree of coercion.

That solitary viewing was associated with ongoing consent behaviors, while shared viewing was associated with coercive behaviors in consent, suggests that more research is needed to better identify the mechanisms by which solitary and shared viewing differentially impact relational and sexual outcomes, as well as why each behavior might be associated with both beneficial and harmful outcomes. For example, Huntington and colleagues (2021) found that rates of watching pornography together were positively associated with both relationship satisfaction and psychological aggression between partners, and in this study, shared viewing was positively associated with both coercive behaviors and communicative sexuality. Perhaps watching pornography together is relationship-enhancing for some couples, but conflictual or

harmful for others, and this differs as a consequence of their overall sexual communication abilities or the compatibility of their desires.

Neither type of pornography viewing was associated with rates of safe sex behaviors. Given the nature of the sample – sexual minority men in (mostly) monogamous committed relationships – concerns about STI transmission, unless they are in a serodiscordant relationship, may be minimal among study participants. Indeed, when given the opportunity to provide feedback on the study through its online recruitment platform, several participants alluded to uncertainty about how to fill out this particular measure, citing how long it has been since they were engaged in sex with new partners. So while ample research attests to an association between sexual minority men viewing pornography and having more unprotected anal intercourse, for example, such patterns may not replicate in an older, entirely partnered, and more monogamous sample such as this one.

As participants reported watching more pornography on their own, they reported fewer instances of perpetrating sexual violence. Meanwhile, their shared pornography viewing was positively associated with rates of sexual violence victimization and perpetration. These findings both align with and contradict an ample, if complicated, literature linking solitary viewing to increased rates of sexual violence perpetration (Ferguson & Hartley, 2022; Mestre-Bach et al., 2024). However, this literature has been limited to mostly heterosexual samples, and there are several reasons to expect the potential impacts of pornography viewing on sexual minority men's relationships to be different.

First, the scripts condoning violence against women reproduced in mainstream heterosexual pornography may be absorbed by viewers differently from instances of violence or aggression between two men. For example, in watching a heterosexual encounter, men may more readily identify with the (almost always male) aggressor in the scene, whereas men watching an act of aggression between two men could potentially identify with either man onscreen (Wright et al., 2024). Second, relative to heterosexual men, sexual minority men are more likely to be victims as well as perpetrators of sexual violence (Gaspar et al., 2021); this could affect their propensity to want to emulate physical aggression depicted in the pornography they watch. Finally, it has been suggested before that watching pornography could function as a way to exercise one's fantasies that are nonconsensual or that one's partner will find undesirable (D'Amato, 2006; Diamond, 2009); in this way, watching pornography alone might be an outlet for drives that could otherwise manifest as actual sexual aggression.

While these hypotheticals may explain the link found here between solitary viewing and less perpetration of sexual violence, the observed positive associations between shared viewing and both perpetration and victimization suggest there is something about simultaneous exposure to the sexual scripts of pornography that is related to sexual violence. Drawing on the well-established acquisition, activation, and application model of sexual socialization (Wright, 2011), watching pornography together could not just socialize men toward harmful scripts, but also provide the sexual setting in which to apply those scripts. Being able to enact sexual scripts that involve violence with one's partner could more strongly influence their propensity to enact those scripts in a nonconsensual manner than merely seeing those scripts unfold while watching

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pornography alone. At the same time, some sexual minority men might also have characteristics that predispose them to both watching pornography with partners and involvement in sexual violence (Kohut & Fisher, 2024) – future research should consider this possibility, paying particular attention to the types of pornography participants report watching.

Associations with quality of learning experiences. It was hypothesized that quality of learning experiences would be associated with more effective consent practices. In partial support of this hypothesis, quality of learning experiences was not associated with ongoing consent, negatively associated with subtle coercion, and negatively associated with communicative sexuality. It is possible that participants received effective messaging around not forcing others into sexual activity, but not specific or helpful information about how to continually negotiate sexual consent. "Do not coerce others" might be a simpler lesson to implement than the more procedural and complex objective of "make sure consent is continuously present". Similarly, ongoing consent is a mostly behavioral process, while the subtle coercion scale contains some more attitudinal components (e.g., "I think my partner should feel guilty if they do not want to have sex with me") that may be more readily influenced by learning experiences.

At the same time, quality of learning experiences predicted less communicative sexuality. In other words, as participants reported having more affirming and helpful learning experiences, they were less likely to agree with both behavioral (e.g., "I verbally tell my partner what I want sexually") and attitudinal (e.g., "I value ongoing conversations about my and my partner's sexual desires") statements that signal comfort with explicitly discussing sex (Glace et al., 2021). There is minimal preexisting research

specifically linking experiences learning about sex and relationships to actual sexual

consent behaviors; MacDougall and colleagues (2022), analyzing an undergraduate

sample that was 87% heterosexual, did find that experiences learning about sexual

consent were related to sexual consent attitudes and behaviors. That the opposite

association was found in this study could be attributed to demographic differences (i.e.,

sexual orientation, age) across the samples. It could also be the case that what participants

perceive as helpful and affirming education has included messaging and information that

actually promote less effective consent-related behaviors. For example, if some sexual

minority men have internalized the message that men are always up for sex and believe

this to be true, they may be less likely to engage in proactive communication about their

sexual desires (de Heer et al., 2021).

Quality of learning experiences did not predict participants' engagement in safe

sex behaviors, nor their involvement in sexual violence. This non-significant association

with safe sex behaviors, as previously noted, may reflect a mismatch between what the

measure captures and the lived experiences of these men in longer-term, committed, often

monogamous relationships. Safer sex decision-making may also be more strongly

influenced by situational factors than by more distal predictors such as prior learning

experiences (Cook & Wynn, 2021). This perspective may be even more salient for the

null finding on quality of learning experiences and involvement in sexual violence; it

could be that personality- and event-level factors are much stronger predictors of

involvement in sexual violence than how and what people have learned about avoiding

sexual violence (Tharp et al., 2012). Alternatively, men's experiences learning about

healthy boundaries and sexual communication may not be effective enough to reduce their risk of being involved in sexual violence.

Exploratory Analysis: Who Learns What Where

The exploratory analyses associated with Aim 2 of this dissertation found familiar patterns of learning about sex and relationships. Prior to turning 18, most participants learned about these topics from school, peers, and pornography, and few learned from religious institutions or dating apps. In adulthood, participants were most likely to report learning from romantic and sexual partners, pornography, and personal research on the Internet, and least likely to learn from religious institutions, parents or guardians, and schools. From a developmental perspective, these trends make sense: participants' engagement with sources seems more agentic and bottom-up in adulthood relative to childhood. There is some overlap here as well with prior research: for example, Stout and colleagues (2022) found that personal research, pornography, and social media were common sources of information for adolescent sexual minority males.

The consistent with which pornography was reported as a source of sexual information accords with prior research asserting a fundamental role for pornography viewing as a source of learning for sexual minority adolescents and adults (Arrington-Sanders et al., 2015; Kubicek et al., 2010; Nelson et al., 2019; Rasberry et al., 2018). Considered alongside the finding that pornography was rated as the least useful source overall when averaging across its helpfulness scores on each of seven sex and relationship education domains, this reinforces the importance of the burgeoning fields of media literacy, writ broadly (Jeong et al., 2012), and porn literacy more specifically (Dawson et al., 2020; Goldstein, 2020). Sexual minority men may be both consciously

and unconsciously aware that there are limitations and potential downsides to their learning through pornography (Griffiths et al., 2018).

Regarding which topics were covered by their interactions with each source, findings mostly align with prior research. Participants learned about the topic of consent and healthy relationships and the topic of gender identity and expression from online sources more than from offline sources; other researchers have identified consent as a topic rarely covered in traditional curricula (Willis et al., 2019), one that emerging adults report learning more about online than from parents, peers, or school-based sex education (MacDougall et al., 2020). Schools provided information about gender identity and expression, sexual orientation and identity, and interpersonal violence at some of the lowest rates, but were the most consistent sources of information for anatomy and physiology and for puberty and sexual development. Research with sex educators has zeroed in on identity as a particularly challenging topic for educators to address (Fisher & Cummings, 2016), and as a topic which their organizations often do not permit them to broach (Williams & Jensen, 2016), which may explain why sexual and gender identity were covered at lower rates in this sample. Dating apps emerged as being a place many participants learned about consent and healthy relationships, as well as sexual orientation and identity, but they were less likely to provide information about both anatomy and physiology and puberty and sexual development. This too accords with previous research, wherein sexual minority men have identified learning norms for self-presentation and interpersonal interactions on dating apps (Gillespie et al., 2022; Havey, 2021).

Finally, exploratory analyses considered the ratings of helpfulness for each source on each of seven topics central to sex and relationship education. Average helpfulness ranged widely, with the lowest score being the rating of pornography as a source of information about consent and healthy relationships, and the highest being the rating for personal research on the Internet as a source of information about sexual orientation and identity. As previously noted, pornography was rated as least helpful source overall, taking its average across the seven topics, while personal research on the Internet was rated as the most helpful source. Both of these findings augment the argument for more media literacy interventions. If sexual minority men are aware of the limitations of pornography as an educational source, they may benefit from support in becoming a more discerning consumer. Similarly, if they ascribe high helpfulness to personal research on the Internet across a range of topics, then for optimal outcomes, they must possess the skills needed to effectively parse the information they find for accuracy and realism.

The exploratory analyses also provide the average helpfulness across all sources for each topic (see Table 22), offering a window into how effectively participants' needs, at least in their own estimation, are being met for each topic in the realm of sex and relationships. The highest average was for sexual orientation and identity, while the lowest was for consent and healthy relationships. Of note, the range of helpfulness across topics was smaller (*Range* = 4.76 to 5.12 on a scale from 1 to 7) than the range across sources (*Range* = 4.19 to 5.82). The greater variability in helpfulness across sources suggests that researchers should pay particular attention to where or from whom participants get their information. Sexual minority men may be relying on sources they consciously know are less helpful for lack of better options. At the same time, this

highlights the importance of assuring that the information provided by the sources perceived as most helpful is, in fact, as helpful as possible; as public health professionals and interventionists, we do not want people putting their faith in processes and sources that will not serve them well.

Masculine Self-Presentation

Aim 3 of this project focused on participants' masculine self-presentation and experiences with dating apps. Participants' scores on the Masculine Consciousness Scale (Taywaditep, 2002) were unrelated to the quality of their learning experiences, meaning hypothesis 3a was not supported. Affirming and helpful learning about sex and relationships could reasonably be expected to increase the flexibility of sexuality minority men's gender presentation (Gowen & Winges-Yanez, 2014), but sexual minority men are susceptible to valuing traditional masculine self-presentation, just as heterosexual men are (Miller, 2015; Oakes et al., 2020). In fact, some of the men in this study might feel, if they have been socialized toward "straight-acting" behaviors and self-presentation and find that socialization congruent with their self-concept, that those learning experiences were quite effective. Future analyses with this dataset might consider this possibility, such as by investigating whether participants especially high in explicit and implicit pro-heterosexuality bias rate their quality of learning experiences in consistently different ways from men low in such biases.

At the same time, other sexual minority men might value fluidity in gender presentation and see learning experiences supportive of such fluidity as being affirming and helpful. With both types of men in the sample – as well as many men somewhere between those two poles – it would be unrealistic to expect an association between

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quality of learning experiences and masculine self-presentation. In other words, the lack of an association here might reflect the subjective nature of affirmingness and helpfulness and the heterogeneous nature of men's relationships to traditional masculinity in this sample. A more effective approach would have been to measure directly how much participants believed their learning experiences reinforced traditional masculine norms and how helpful they thought this was.

Dating App Victimization

Prior research suggests that sexual minority individuals might be at increased risk of victimization through dating apps, relative to heterosexual individuals, and that younger sexual minority men might be especially at risk (Gewirtz-Meydan et al., 2024). Furthermore, risk mitigation in online dating is a complex and effortful process (Albury et al., 2021) that one might expect to be facilitated by effective experiences learning about consent and healthy relationships. However, contrary to what was hypothesized, participants' reports of being victimized through dating apps were not related to the quality of their learning experiences.

This null finding has several possible explanations. One is that such a relationship does exist, but the analysis was underpowered. Despite only 144 participants reporting any dating app use and being included in this analysis, the coefficient was negative and close to significant ($p = .106$). Future research should test this hypothesis with a larger sample to see if the finding is present with better statistical power.

Second, much, if not most, prior research on dating app victimization has been conducted with adolescent and young adult samples (Gewirtz-Meydan et al., 2024); this sample is older and may utilize dating apps differently from younger sexual minority men

(Ward, 2017). Third, engaging with potential partners in technology-mediated ways may limit app users' abilities to draw on helpful skills and knowledge (Pruchniewska, 2020). Finally, there are limits to how much one can expect people to proactively defend against victimization; perpetrators are, after all, responsible for their actions, and it is perhaps not realistic to expect quality learning experiences to protect against a behavior largely or entirely outside of participants' control.

Implicit and Explicit Bias

Prior research has repeatedly found implicit biases both for and against one's sexual identity among sexual minority individuals (Kirby et al., 2021; Jones & Devos, 2014). At the same time, sexual minority individuals also often, if not typically, demonstrate explicit bias in favor of their sexual identity (Anselmi et al., 2015; Banse et al., 2001). Results of this study are consistent with prior research in finding low levels of explicit homophobic bias among sexual minority men. However, these findings deviate from past work by demonstrating a slight implicit pro-heterosexuality bias, whereas in previous studies of sexual minority men an implicit pro-homosexuality bias of similar magnitude was found (Fleming & Burns, 2017; Jones & Devos, 2014).

We further expected that because sexual minority men report their experiences of learning about sex and relationships are often stigmatizing and unhelpful, they would demonstrate lower rates of implicit and explicit bias as they reported more affirming and helpful learning experiences (McNeill, 2013; Shtarkshall et al., 2007). Contrary to this expectation, quality of learning experiences did not predict participants' levels of explicit or implicit bias.

Since this independent variable takes the average of all learning experiences, it may obscure how especially affirming experiences, or especially stigmatizing ones, are the moments that actually correlate with present-day biases. This possibility could be tested in this sample, for example, by testing for associations specifically between participants' least and most helpful sources of information and the outcome variables being studied here.

Additionally, the implicit biases held by participants in this study may be more dependent on their present-day context than on the nature of those learning experiences. The bias-of-crowds theory (Payne et al., 2017) suggests that implicit attitudes are highly context-dependent; therefore, the implicit biases of participants in this study may be more influenced by aspects of their experience that are not captured in analyses, such as how many sexual minority friends and family members they have, how affirming their social environments are, and how much bias towards or against sexual minorities exists in the town, city, or region in which they live. It would be helpful to test this same hypothesis controlling for the potential influence of these kinds of structural and community variables.

Another potential explanation for the lack of association between quality of learning experiences and both explicit and implicit bias is that participants in the study become more selective and skilled in accessing more affirming learning experiences as they age (Chan, 2023). Participants reported learning from traditional sources less after they turned 18, and more from sources they tended to perceive as more helpful and affirming (e.g., partners, personal research on the Internet). In other words, participants

have likely gravitated toward more effective and affirming sources over time, diminishing the likelihood that these sources would increase their bias.

In support of the study's final hypothesis, both implicit and explicit bias were negatively associated with relationship satisfaction. Previous research (e.g., Szymanski et al., 2016; Thies et al., 2016) had established a link between self-reported (i.e., explicit) internalized heterosexism and lower relationship quality for individuals in same-gender relationships; however, no previous study had attempted to connect implicit bias to relationship satisfaction. This is some of the first evidence that sexual minority men's implicit attitudes, in addition to their explicit attitudes, might deserve consideration as a factor in their relationship quality.

Importantly, explicit bias and implicit bias concurrently predicted lower relationship satisfaction in this study. Much work has focused on the mechanisms by which explicit bias is associated with relationship quality (e.g., Li & Samp, 2019; Szymanski et al., 2016; Thies et al., 2016). Given the significant but relatively weak association between explicit and implicit bias identified in this study, it is quite possible that implicit bias both impacts relationship quality in ways both similar and dissimilar to those of explicit bias; future research should test for such links. For example, explicit bias might be directly communicated toward one's partner(s) in the form of direct verbal aggression, such as denigrating a partner for behaving in certain ways. Implicit bias, on the other hand, might more subtly impact relationships, such as through policing of a partner's behavior in ways that might not outwardly appear to be driven by bias (Coons & Espinoza, 2018).

The question of how psychologists and therapists might approach implicit bias as a treatment target, given its association with poorer relationship satisfaction, rests at an interesting intersection of social and clinical approaches. One of the few studies to relate implicit biases to psychotherapy outcomes among sexual minority adults found that clients higher in implicit internalized homonegativity benefited more from therapy than clients lower in implicit homonegativity (Millar et al., 2016). It is possible, therefore, that if sexual minority men high in implicit pro-heterosexual bias can be identified, their relationships might benefit in particular from relationship education or couple therapy interventions.

Interventions designed to specifically change implicit bias often have time-delimited impacts on participants' implicit attitudes (Lai et al., 2016). Returning to bias-of-crowds theory, interventions may have limited effectiveness because participants' potential to shift their bias in the longer-term, in the aggregate, is constrained by the environment in which they live (Vuletich & Payne, 2019). If sexual minority men live in hostile and heterosexist environments with few affirming cues, their implicit attitudes may be persistently heterosexist. From an interventionist perspective, relationship quality may improve for couples if they are able to alter their environments, or change environments entirely, to live with fewer daily reminders of bias. This is, of course, an unrealistic expectation of sexual minority men for both practical and ethical reasons; large-scale social interventions to change environments should be undertaken to potentially improve the quality of sexual minority men's relationships indirectly (i.e., through gradually shifting their levels of implicit bias). Efforts to promote positive depictions of sexual minority men in the media, increase the presence in public settings

and workplaces of identity safety cues, and codify further legal protection for sexual minority individuals, might all potentially increase relationship quality for sexual minority men by indirectly reducing their implicit pro-heterosexuality bias (Carels et al., 2013; Cipollina & Sanchez, 2019; Jolls, 2007).

General Discussion and Limitations

The various hypotheses made in this study received only partial support. Participants' pornography viewing and the quality of their learning experiences were each related to some aspects of their sexual behaviors and romantic relationships, but not others.

This project focused on pornography viewing as both an ongoing sexual and relational behavior and a source of information about sex and relationships. This decision was driven by the high prevalence of pornography use among sexual minority men and a bevy of research with heterosexual individuals and couples identifying pornography use as a correlate of sexual and relational quality. This study provides preliminary evidence that pornography viewing behaviors are indeed associated with relational and sexual outcomes in sexual minority men, some of which (e.g., sexual consent behaviors) have heretofore received minimal attention with heterosexual as well as sexual minority samples. Much more research is needed to identify which such associations are consistent and replicable in this population and bring this area of research more in alignment with the depth of the literature on heterosexual relationships. Moderators and mediators of these associations, such as the types of pornography men watch, how frequently they are sexual together while watching, and the role of perceiving one's use of pornography as problematic, are important next steps. Addressing these research gaps could benefit

sexual minority men in particular, but also provide guidance for the broader fields of relationship science and pornography studies as well.

In retrospect, the composite variable was operationalized in a way that limits both its interpretation and its potential to accurately link present-day outcomes to salient learning experiences. First, although participants were asked to describe whether they learned from each source prior to and after turning 18 years of age, they were not asked to differentiate between these periods of time when rating the overall helpfulness and affirmingness of each source, nor when indicating each source's overall helpfulness versus hurtfulness with regards to each of the seven topics under study. Thus, the composite measure used as an independent variable in this study likely encapsulates a broad range of experiences. To group into one variable moments as disparate as anatomy lessons in a middle school sex education class and a conversation about gender identity in middle age with one's partner condenses a large range of life experiences (in other words, a great deal of variability) into a single number.

As previously noted, several steps could be taken, with this dataset or in future research, to model these associations with greater specificity. Perhaps the most pressing domain in which to consider this is relationship quality. The overall helpfulness versus hurtfulness of participants' experiences learning about the first of the seven topics, consent and healthy relationships, when averaged across all sources, might be a better predictor of present-day relationship satisfaction. Alternatively, models might include the helpfulness of several specific sources as separate predictors, based on further review of the literature.

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The utility of this approach to measuring quality of learning experiences could also be enhanced by accounting for participants' sexual identity development. It is likely that participants' perceptions of their learning experiences are filtered through the sexual identity development processes or stages they may be undergoing at present, and measures are available to assess for this (e.g., Worthington et al., 2008). Furthermore, sexual minority individuals vary widely, with differences influenced by demographic variables such as age, in the timing of their sexual identity development milestones (Bishop et al., 2020). Accounting for these developmental aspects of sexual minority men's lives could help explain why certain learning sources are perceived as more helpful than others, when and why those differential perceptions occur, and ultimately how those learning experiences relate to sexual and relational outcomes.

This is the first study to ask sexual minority men to rate the helpfulness and affirmingness of a comprehensive list of potential sources of learning about sex and relationships, and the differences in their reports on these sources, as briefly discussed in the Exploratory Analyses, merit further investigation. There was significant variability both within and between these sources in their perceived helpfulness, a pattern present in previous qualitative research (e.g., Hobaica & Kwon, 2017; MacAulay et al., 2022; Pingel et al., 2013), but more quantifiable here. Future analyses, grounded in relevant theory, should leverage this variability to ask more specific questions about when and how specific learning experiences, regarding specific sex- and relationship-related topics, are predictive of sexual and relational outcomes.

Finally, the measures used in this study may have been overly specific to the experiences of men who primarily or exclusively sleep with other men. While pains were

taken to ensure that the Safer Sex Behaviors Questionnaire covered both same-gender and cross-gender sexual behaviors, and that the Revised Internalized Homophobia Scale listed multiple sexual minority identities, other measures, such as the Gay and Lesbian Relationship Satisfaction Scale (GLRSS), were chosen based on the expectation that most participants would be in a relationship with another man. Thus, measures such as the GLRSS may be less applicable to the bisexual, pansexual, and queer men in this sample. Furthermore, the participants with those sexual orientations in this sample may have a different relationship to their attraction to men, relative to the men in the sample identifying as gay; this could mean that they experienced the IAT, with its limited focus on gay versus heterosexual imagery, in different ways.

These limitations point toward one more methodological shortcoming: data on the gender of participants' primary partners were not collected. Ideally, future research with sexual minority men on this topic would include this variable so that it can be included as a covariate or a potential moderator. Although moderation analyses by sexual orientation did not show differences across sexual orientations in this sample, it could nevertheless be the case that some of the associations tested for in these analyses would be present for sexual minority men in relationships with men, but not for sexual minority men in relationships for women.

Conclusion

The present study found partial support for its general hypothesis that current pornography viewing behaviors, as well as experiences learning in childhood and adulthood about sex and romantic relationships, would be associated with sexual and romantic outcomes for sexual minority men. It broke new ground by relating sexual

minority men's pornography viewing to understudied outcomes, assessing for the

helpfulness of a comprehensive list of sources of sexual and romantic learning, and

utilizing the IAT to link implicit pro-heterosexuality bias to relationship satisfaction.

Results have important implications for sexual health researchers, sex educators, couple

therapists, and relationship scientists, and provide direction for more precise and rigorous

evaluation of these research questions.

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Appendix

Supplemental Table 1. Bivariate correlations among average helpfulness for each source and dependent variables in the study.

	SCH	REL	PAR	PEER	PART	POP	INT	SOC	DAT	POR	INH	SOP	SHP	RELS	SCHC	SAI	SSB	EXH	MSC	ONG	COE	COM
SCH	1	.75**	.68**	.53**	.52**	.50**	.50**	.45**	.43**	.7**	.12	.22**	.13	.34**	-.12	.16	.10	.01	.03	.16*	.11	.29**
REL	.75**	1	.83**	.71**	.65**	.70**	.74**	.74**	.65**	.66**	.10	.33*	.32*	.23	-.26	.29	.19	-.06	.15	.35*	.20	.34*
PAR	.68**	.83**	1	.58**	.52**	.52**	.55**	.50**	.47**	.43**	.14	.12	.15	.36**	-.31**	.23*	.13	-.09	-.06	.18	.051	.29**
PEER	.53**	.71**	.58**	1	.61**	.52**	.57**	.50**	.53**	.41**	-.05	.03	-.08	.21**	-.03	.17*	.01	-.05	-.03	.06	.01	.16*
PART	.52**	.65**	.52**	.61**	1	.49**	.61**	.49**	.49**	.38**	-.06	.13	-.19**	.18**	-.09	.31**	.02	-.15*	-.10	.16*	-.10	.21**
POP	.50**	.70**	.52**	.52**	.49**	1	.49**	.69**	.63**	.55**	-.13*	.04	.10	.07	-.07	.07	.16*	.03	.01	.10	.07	.04
INT	.50**	.74**	.55*	.57**	.61**	.49**	1	.55**	.50**	.40**	-.11	.09	-.09	.26**	.06	.24**	.14*	-.34**	-.13*	.26**	-.25**	.35**
SOC	.45**	.74**	.50**	.50**	.49**	.69**	.55**	1	.70**	.55**	-.08	.21**	.15*	.18*	-.00	.09	.12	-.03	-.06	.15*	-.04	.07
DAT	.43**	.65**	.47**	.53**	.49**	.63**	.50**	.70**	1	.60**	.07	.22*	.22*	-.12	-.05	.03	.24*	.11	.05	-.12	.22*	.01
POR	.37**	.66**	.43**	.41**	.38**	.55**	.40**	.55**	.60**	1	-.06	.33**	.22**	-.03	-.06	-.03	.13	.03	.08	-.13	.21**	.02
INH	.12	.10	.14	-.05	-.06	-.13*	-.11	-.08	.07	-.06	1	-.07	.04	-.21**	-.16**	-.14*	-.04	.27**	.13*	-.13*	.26**	-.04
SOP	.22**	.33*	.12	.03	.13	.04	.09	.21**	.22*	.33**	-.07	1	.34**	.03	.03	-.01	-.06	-.10	-.03	.11*	-.07	.11
SHP	.13	.32*	.15	-.08	-.19**	.10	-.09	.15*	.22*	.22**	.04	.34**	1	.13*	-.02	-.15*	.05	.07	.09	-.02	.16*	.11
RELS	.34**	.23	.36**	.21**	.18**	.07	.26**	.18*	-.12	-.03	-.21**	.03	.13*	1	.02	.44**	.19**	-.31**	-.20**	.29**	-.21**	.50**
SCHC	-.12	-.26	-.31**	-.03	-.09	-.07	.06	-.00	-.05	-.06	-.16**	.03	-.02	.02	1	-.08	.07	-.13*	.08	.12*	-.18**	.12*
SAI	.16	.29	.23*	.31**	.31**	.07	.24**	.09	.03	-.03	-.14*	-.01	-.15*	.44**	-.08	1	.22**	-.21**	-.19**	.34**	-.26**	.32**
SSBQ	.10	.20	.13	.01	.02	.16*	.14*	.12	.24*	.13	-.03	-.06	.05	.19**	.07	.22**	1	-.02	-.10	.21**	-.06	.23**
EXH	.01	-.06	-.09	-.05	-.15*	.03	-.34**	-.03	.11	.02	.27**	-.09	0.07	-.31**	-.13*	-.21**	-.02	1	.49**	-.25**	.52**	-.27**
MSC	.03	.15	-.06	-.10	-.10	.01	-.13*	-.06	.05	.08	.13*	-.03	.09	-.20**	.08	-.19**	-.10	.49**	1	-.16**	.39**	-.16**
ONG	.16*	.35*	.12	.06	.16*	.10	.26**	.15*	-.12	-.13	-.13*	.12*	-.02	.29**	.12*	.34**	.21**	-.25**	-.16**	1	-.44**	.55**
COE	.11	.20	.05	.01	-.10	.07	-.25**	-.04	.22*	.21**	.26**	-.07	.16**	-.21**	-.18**	-.26**	-.06	.52**	.39**	-.44**	1	-.20**
COM	.29**	.34*	.29**	.16*	.21**	.04	.35**	.07	.01	.02	-.04	.11	.11	.50**	.12*	.32**	.23**	-.27**	-.16**	.55**	-.20**	1

Note: SCH = helpfulness of schools; REL = helpfulness of religious institutions; PAR = helpfulness of parents; PEER = helpfulness of peers; PART = helpfulness of partners; POP = helpfulness of popular media; INT = helpfulness of personal research on the Internet; SOC = helpfulness of social media; DAT = helpfulness of dating apps; POR = helpfulness of pornography; INH = internalized pro-heterosexuality bias; SOP = solitary pornography viewing; SHP = shared pornography viewing; RELS = relationship satisfaction; SCHC = homophobic school climate; SAI = investment in sexual agreement; SSB = safer sex behaviors; EXH = explicit internalized homophobia; MSC = masculine consciousness; ONG = ongoing consent; COE = coercive consent behaviors; COM = communicative sexuality; * = $p < .05$; ** = $p < .01$.

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