Social Influences on Pornography Consumption:

Information and Social Pressure in the Pornography Consumption Decision

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1 Abstract

Despite the widespread nature of pornography consumption, there has been limited research investigating the impact of social factors on consumers' pornography-related decision-making. This study aims to (a) explore the validity of utilizing story-based priming to investigate decision-making around pornography and (b) investigate the effects of informational and social pressure components of social interactions on pornography consumption decisions.

In a survey experiment administered to a snowball sample of 302 college students, participants were randomly assigned to a control group or one of two treatment groups (1:1:1). The treatments consisted of priming participants with story-based reading that emphasized either the informational or the social-pressure components of social interactions around pornography. Participants then reviewed and provided comfort ratings for seven vignettes describing pornographic video material which varied in the level of provided sexual consent. Comfort ratings were used as a proxy for consumption decision-making and were then compared across treatment groups and consent levels. Regression analyses were conducted to additionally examine the effect of related social variables on frequency of pornography consumption.

Overall, level of comfort with each pornographic vignette was not affected by focused story-based priming. However, analysis by gender found meaningful differences. In the control group, comfort level among men was consistently higher than among women for all seven described scenarios. Interestingly, in the treatment groups, the differences in reported comfort level were opposite among male and female participants. Among female participants, comfort was rated higher in the information group, and even higher in the social pressure group, compared to control ratings. In contrast, among male participants, comfort was rated lower in the information group and even lower in the social pressure group, compared to controls.

These findings suggest that men and women may respond differently to social interactions around pornography, which may then impact their pornography consumption. Possible explanations for these gender-based differences are presented, focusing both on potential gendered differences in both previous social interactions and in responses to the specific survey methodology. Further research is needed to determine whether similar effects are found in a larger sample, and whether changes in comfort are a useful instrument to measure changes in pornography consumption habits. [1]

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2   Introduction

With Pornhub being the 10th most-trafficked website worldwide and visited by 120 million viewers daily, the consumption of pornography is incredibly widespread (Pornhub, 2020). This consumption has been found to be directly relevant to individual and societal well-being. As such, gaining a better understanding of the factors that influence pornography consumption will offer insight into a multitude of related socially-significant areas. Utilizing participant comfort as an instrument for choice, this study builds on recent work about the significance of social variables in pornography consumption by breaking down the impact of social interactions into their information and social pressure components. The aim of this study is therefore to develop a better understanding of the role of these components of social interactions in the pornography consumption decision, and to examine the validity of the employed methodology.

2.1   Definition

Although pornography as a whole encompasses a wide array of content across many forms of media, this study will restrict itself to examining internet, video pornography. Following the precedent set in the literature, the definition of pornography utilized in this study will be "sexually explicit [internet videos] intended to [cause arousal]" (McKee et al., 2019).

Social interactions will be defined for the purposes of this study as the exchange of verbal and nonverbal communication between individuals in a social context. Regarding sex-related socialization, this definition therefore includes but is not limited to peer-based discussions, conversations with adults about sex or sexuality, and formal sexual education provided in schools. These interactions may be facilitated either in person or through digital platforms.

2.2   Motivation

While pornography is not commonly studied among economists, the widespread nature of its consumption and the resulting effects of this consumption make the implications of this research both informative to policymakers and broadly culturally-relevant.

2.2.1   Influence on Sexual and Romantic Behaviors

Pornography is often utilized by young people as a source of sexual literacy, with 50% of adolescents in a nationally-representative sample reporting seeking out sexually-explicit media (Bleakley et al., 2010). Pornography thus impacts early sexual experiences of adolescents, shaping their later beliefs and expectations about sex.

Relatedly, pornography consumption has been found to influence individuals' behaviors in romantic and sexual relationships. Utilizing five separate studies with a variety of approaches, Lambert et al. (2012) find that higher

levels of pornography consumption correspond to weakened commitment to a romantic partner in young adult romantic relationships, with participants who consumed higher levels of pornography being more likely to flirt with an extra-dyadic partner during an online chat. Another study found that discontinuing pornography use was found to lower the rate of divorce for female participants (Perry, 2017). Although these findings may not be interpreted causally, pornography is nevertheless associated with a variety of sexual and romantic behaviors and expectations.

2.2.2 Pornography and Aggression

For the most part, increased rates of pornography consumption are not found to correspond to higher rates of sexual aggression (see, for example, Hald, 2006; Barak et al., 1999). As of 2009, a review of the research on pornography and sex-related crime demonstrated that, as pornography has increased in availability, the number of sexual crimes has either decreased or remained constant (Diamond, 2009). Further, other studies have found that more frequent pornography engagement is not associated with greater comfort with descriptions of non-consensual sexual acts (Dawson et al, 2020).

However, it's important to note the high levels at which online pornography depicts violence against women and people of color. For example, of a sample of 209 pornography videos, Monk-Turner and Purcell (1999) found that most videos included violent, dehumanizing, or degrading themes and that black women experienced violence in pornography more frequently than white women. Given the socializing role of pornography around young people, exposure to this type of violence may normalize these behaviors and result in an increase of negative attitudes toward women, and especially women of color.

Although pornography itself is not associated with higher rates of violence, exposure to such violent pornography has been found to be associated with increased sexual aggression (Demaré et al., 1993). While the impacts of violent pornography have been insufficiently studied, previous findings linking violent video games with aggressive and anti-social behaviors (e.g. Greitemeyer & Mügge, 2014) imply that violent pornography may similarly affect real-world violent and social behaviors.

2.2.3 Policy Implications

The vast majority of pornography-related public policy, both previously enacted and proposed by anti-porn activists, focuses on implementing stricter legal prohibitions on "obscene" materials. Despite countless previous attempts at prohibition-focused regulation, the pornography industry remains highly unregulated. According to the New York Times, in 2018 alone tech companies reported over 45 million online photos and videos of children being sexually abused (Keller and Dance, 2019). Further, 8% of participants in one study's sample of US adults reported being victims of non-consensual pornography (Ruvalcaba and Eaton, 2020).

The failure of prohibition-based policies is likely related to their reliance on a strict, well-defined understanding of pornography, which, due to the nature of online pornographic content, is extremely difficult to create. Further, the decentralized nature of the pornography industry makes enforcement of these policies extremely difficult and costly.

Regulation is further complicated by the diversity of ways that pornographic content is created and circulated. For example, on the pornography site Only-Fans, creators are able to charge subscription and other fees, block suspicious accounts, remain anonymous, and keep 80% of their profits (The Village Voice, 2021). On the other hand, the structure of other sites makes it more difficult for uploaders to control how their content is circulated. On the producer side, makers of pornography may create small, at-home videos, or work within the system of larger, established studios. Regulatory issues persist throughout these various systems, including copyright violations, the utilization of pornography as a medium for sex trafficking, and the use of false identification to circumvent age restrictions (Croxford and Titheradge, 2021).

Policy solutions have been hindered by a lack of understanding of the social mechanisms that affect pornography consumption. Developing a better understanding of these mechanisms would allow for expansion of the scope of public policy from mere prohibition to strategic, consumer-focused mechanisms that more effectively increase safety around pornography.

2.2.4   Relevance to Current Cultural Movements

There have been a number of recent cultural movements that have demonstrated the growing cultural awareness of the importance of safe pornography production and consumption. Building a better understanding of the consumer pornography choice would capitalize on this societal momentum by providing a set of consumer-side tools to be utilized within these safe pornography efforts.

2.2.4.1   Ethically-Produced Pornography

For one, gaining a better understanding of individual decision-making around pornography would support the recent growth of the market for ethically-produced pornography. The term "ethically-produced pornography" refers to pornography that is made legally and under sound working conditions, in ways that respect the rights of the performers involved. Ethically-produced pornography is heavily influenced by the field of "feminist pornography," which advocates for similar standards, but additionally emphasizes the importance of depicting real-world, imperfect sex and celebrating sexual diversity (Scott, 2016).

While it is difficult to establish the prevalence and perceived importance of ethically-produced pornography, the growth of this field demonstrates a push for safe pornography, rather than pornography restriction. Developing a greater understanding of how consumers select their pornography would provide producers of ethically-made porn with nuanced information as to how to attract consumers who may otherwise be consuming unsafe pornography. It's likely

that this growth, by offering alternatives to mainstream pornography while simultaneously providing consumers with access to an array of sexually explicit materials, could reduce the consumption of more dangerous forms of pornography.

Importantly, the field of ethically-produced pornography does not seek to limit the production of "hard-core" pornography, but rather aims to produce this content in a safe way and to provide consumers with information about how the content has been produced (see, for example, Davis, 2019; Ergen, 2018; Liberman, 2015; Macleod, 2020a; Macleod, 2020b). For example, consumers of a hard-core video on current mainstream pornography sites are likely unaware of whether the performers consented to participation in the scene beforehand. In contrast, an ethically-produced pornography site would provide viewers with a disclaimer describing that consent was given beforehand and that the performers were treated respectfully.

The standardization possible within the growing market for ethically-produced porn may be considered similarly to use of the standardized "FAIRTRADE" label, which informs consumers that a product has been produced according to agreed-upon social, environmental, and ethical standards. The emergence of ethically-produced pornography could foreseeably lead to the establishment of similar labels for online videos, which would provide consumers with production information communicated in a standardized format. Such information would empower consumers to select pornography that is consistent with their own values.

2.2.4.2   Recent Changes in Regulation

In addition to the growth of ethically-produced pornography, there have also been a number of recent changes in the regulation of pornography more generally. For example, in the way of internal regulation, there have been major pushes to reduce the presence of illegal content on pornography sites. For example, in 2020, Pornhub removed as many as 8.8 million videos — about half of the videos on the site — due to suspicion that they contained illegal content or were produced illegally (Cole, 2020).

This decision, along with similar ones by other pornography sites, was largely spurred by the publication of a New York Times editorial entitled "The Children of Pornhub" (Kristof, 2020). As a result of this publication, a number of the major credit providers, including Visa and Mastercard, stated that they would not allow their services to be used on porn sites if the upload standards on these sites did not change (Naughton, 2020). To be sure, the systems of financial and liability motives at play do not lend themselves to a moralistic understanding of this move. However, these decisions were ultimately made because of consumer demands for safer content.

There have additionally been a number of lawsuits brought against Pornhub and other partner companies that demonstrate consumers' growing rejection of the major pornography companies' dangerous standards. For example, 30 women filed a lawsuit in June, 2019 alleging that Pornhub profits off promoting

non-consensual intercourse, rape, and child pornography. This lawsuit, among others, demonstrates the increased cultural awareness of the dangers of these types of pornography and the growing call for safer standards (Hughes, 2021).

These changes should also be considered in the context of the increased social concern around sex trafficking spurred by the passing of the 2018 SESTA ("The Stop Enabling Sex Traffickers Act") and FOSTA ("Fight Online Sex Trafficking Act") acts. Specifically, SESTA/FOSTA altered Section 230 of the Communications Decency Act, effectively declaring that sites are now legally responsible for media they host that could be promoting sex trafficking, even in cases where that media is uploaded by individual users. SESTA/FOSTA thus implies that sites may be held liable both for hosting this type of content, and for failing to set relevant precautionary measures (Albert et al., 2023. While these laws have been largely criticized by sex workers, they have undoubtedly spurred a legal and cultural conversation reflecting an increased awareness of pornography's relation to sex trafficking.

This changing cultural awareness of pornography and its regulation lay the groundwork for the present study by creating cultural conditions in which the consumption of pornography is increasingly entering the public consciousness. This setting makes it all the more crucial to understand how individuals receive social messaging about pornography, and how these messages affect their future consumption.

3 Literature Review

Although the impact of specific mechanisms of social influence remain unclear, there have been a number of studies which offer insight into the various social and other factors that impact the pornography consumption decision.

3.1 Social Influences on the Pornography Consumption Decision

In a 2017 paper, researchers Danielle Cooper and Jennifer Klein discuss the findings of a self-report survey investigating the relationship between a number of variables, both demographic and social, on college students' likelihood of visiting a pornography website at least once in the past six months (Cooper and Klein, 2017). The analysis in Cooper and Klein's paper mainly consists of a partial test of Akers' social structure-social learning theory (SSSL).

Akers' SSSL theory is largely used in the context of exploring trends and influences on criminal behavior, but has also been utilized by fields such as economics, sociology, and psychology for the insights it offers into deviant and taboo behaviors. Employed in the context of Cooper and Klein's paper, the theory states that the effects of structural (here referred to as demographic) variables (e.g. Religion, gender, age, frequency of masturbation, etc.) on pornography consumption are mediated when considered alongside social learning process

variables. The main social variables described in Akers' theory are (1) differential association, which refers to group social interactions which may influence individuals' behavior, (2) differential reinforcement, which refers to the ways in which social groups impose rewards and punishments on certain behaviors, (3) imitation/modeling, which refers to learning that takes place based on observation of others, and (4) definitions favorable, which refers to individuals becoming aware over time of which behaviors are considered acceptable (Akers, 1998).

Overall, Cooper and Klein (2017) find that, as expected, demographic variables such as gender, race, and frequency of masturbation are significant predictors of pornography consumption. Importantly, though, the authors also find that social factors such as differential peer association and differential reinforcement also have a significant impact on pornography consumption. The social variables examined fully mediated ethnicity, year in school, and number of sexual partners, and partially mediated gender, race, and sexuality. Cooper and Klein thus demonstrate that pornography is not influenced by private demographic factors alone, but is also significantly impacted by one's pornography-related interactions with others.

Since the authors do not further investigate specifically what aspects of social interactions account for these impacts, these findings provide the basis for the current study to more specifically examine the specific structures and outcomes of these interactions.

3.2   Social Influences in other Contexts

While Cooper and Klein's study is one of the only previous investigations of the social influences on pornography consumption specifically, the impact of social factors on taboo behaviors is well-documented in other contexts. The literature on these other types of consumption is informative to understanding the specific pornography case.

In a 2017 review, Bursztyn and Jensen present a number of recent field experiments within economics which find that social image concerns have a significant effect on a wide range of behaviors, including voting, the purchase of luxury goods, and charitable giving (e.g. see Funk, 2010; DellaVigna et al., 2012; Charles et al., 2009). Social influences in these contexts play an important role in a wide variety of decision-making processes, and may cause consumers to behave in ways that reduce their welfare by non-social standards.

Importantly, social influences significantly affect not only behaviors visible to others, but private behaviors as well. A well-accepted model of the effects of these social interactions is presented by Durlauf and Ioannides in their 2010 review paper on social interactions within economics. This model implies that individuals' beliefs about others' decisions affect their own decision-making even when others' choices are unobservable. Social influences thus enter into the model as "deterministic social utility," meaning a component of the utility equation that captures dependence of individual utility on others' choices.

The role of social pressure in these contexts demonstrates the presence of social influences even in private decision-making such as the pornography con-

sumption decision.

3.3 Other Influences on Pornography Consumption

Previous research has found a number of other variables, in addition to the social ones referenced above, that affect pornography consumption. For example, Brown et al. (2017), utilizing data on 457 college students in the United States, conclude that there are three primary categories of pornography consumers: porn-abstainers, complex porn users, and auto-erotic porn users. The motivation for pornography consumption differed by group. While both auto-erotic and complex porn users primarily utilized pornography for sexual arousal, physical pleasure, and masturbation, complex porn users also reported using pornography for excitement and to expand knowledge of sexual possibilities (Brown et al., 2017).

Gender is an additional commonly-referenced predictor of pornography consumption, with women making up only 32% of annual visitors to the site Pornhub (Castleman, 2020). In one study, for example, 80% of male participants reported having watched porn within the past four weeks, as opposed to only 25% of female participants (Böhm et al., 2014). However, other studies have found far wider gaps in male and female pornography consumption, particularly among younger samples (see, for example, Matthiesen et al., 2011).

While men are more likely to watch pornography on their own, women have been found to be more likely to consume pornography with a regular sexual partner. Further, when a heterosexual couple watches porn together, it is much more likely that the activity was at the suggestion of the woman, and that she had an active role in selecting the video (Hald, 2006).

3.4 Rational Choice and Sexual Arousal

The study of pornography choice is particularly interesting in that, within sexual-charged contexts like pornography consumption, individuals are likely to be less rational than in other decision-making contexts.

In 2006, Ariely and Loewenstein conducted a study in which male college students completed a survey describing their feelings towards morally-ambiguous behavior. Students were randomly assigned into a control and treatment group; the control group took the survey normally (non-aroused control), while the treatment group took the survey while in the process of self-stimulating (aroused treatment). Results demonstrated that sexual arousal had a strong impact on all dimensions of activity studied. Specifically, participants who were aroused indicated that, relative to the control, they felt a variety of sexual stimuli to be more appealing, demonstrated higher willingness to engage in morally-ambiguous behavior in order to obtain sexual gratification, and reported higher willingness to engage in unsafe sex (Ariely and Loewenstein, 2006).

These altered preferences during arousal and their effect on decision-making have also been documented in other contexts which are additionally relevant to pornography choice. Arendt et al. (2019), document that, in high-choice

environments such as the internet, media consumers commonly utilize mental shortcuts or heuristics in decision-making. The authors thus emphasize the importance of automatic, gut-level responses in understanding decision-making in high-choice environments.

The breadth and availability of pornography makes it such a high-choice environment. Coupled with the fact that consumers are likely in states of arousal when seeking out pornography, these findings demonstrate the nuances within the pornography consumption decision which require investigation beyond normal rationality assumptions. This question of rationality makes studying the pornography consumption choice particularly interesting in that it calls into question traditional assumptions about the centrality of rational choice in economic models.

4   Methodology

The main component of this research consisted of an online survey experiment conducted from December 2022 - March 2023 using the Qualtrics platform. The survey consisted of 35 questions across 4 sections. Each section is outlined here and then described in more detail below. The entire survey is included in the appendix.

Participants were first asked a number of general demographic questions.

Next, participants were randomly assigned into one of two treatment groups or a control group. Participants in the two treatment groups then read either a text providing them with neutrally-toned information about pornography (information group), or a text describing a positively-toned pornography-related dialogue (social pressure group). After completing the reading, participants in the treatment group also answered an additional question intended to capture whether the reading had successfully communicated the desired message. The control group did not complete any reading and instead moved directly to the third section.

In the third section, participants were presented with 7 vignettes, each describing a scene in a pornographic video. Participants were instructed to read each scene, and then to indicate how comfortable they'd feel watching the video described on a scale from very uncomfortable to very comfortable.

Lastly, information was collected about participants' sexual habits and social interactions around sexuality and pornography. Questions in this section mimicked those utilized by Cooper and Klein (2017) in order to collect the necessary data to verify their results.

The resulting data from this survey was utilized to determine whether the treatments had a significant effect on participants' comfort ratings.

4.1   Recruitment

Only individuals who were over 18, fluent in English, and currently enrolled in a US undergraduate program were eligible to participate in this study. Partic-

ipants were recruited through snowball sampling through Facebook and email, utilizing IRB-approved language and a study flier (included in the appendix).

Information about the survey was posted on personal Facebook accounts and shared with individuals and groups who may be interested in participating, including economics-related clubs, research-related clubs, and LGBT clubs. This Facebook recruiting was primarily conducted among students at the University of Chicago, while other recruiting methods were more focused on recruiting participants from other universities.

Email recruiting was used to contact individuals at other universities across the United States. About 270 emails were sent to relevant clubs at 40 universities. The email included information about the study and asked that club heads either complete the survey themselves or forward the survey to potentially-interested club members.

This recruitment yielded 302 survey participants. Due to the choice of college students as a sample, the recruitment strategy, and the issue of self-selection, the results of this study are not generalizable to a non-college population.

4.2   Treatment

In order to analyze the specific mechanisms through which social interactions affect pornography consumption, social interactions were split into information and social pressure components. It is well-established that these two components capture the primary aspects relevant to social interactions. For example, Durlauf and Ioannides (2010) describe that canonical social interactions are generally considered to be composed of conformity effects, meaning changes in utility derived from making the same decision as others, and information diffusion. These components can also be thought of as the explicit versus implicit messages that are communicated from one individual to another during a social interaction. For the purposes of this study, these two main components are labeled social pressure and information, although other studies may refer to the same phenomena with varying terminology.

The treatment in this study is intended to, in effect, simulate a social interaction that operates primarily through only one of these components. To be sure, there is no way to create an interaction that is purely informational or purely pressure-based; in any conversation there are elements of both explicit and implicit exchange. As such, the readings for the treatments are designed to mimic this mix of components, with each treatment nonetheless emphasizing a particular aspect of the interaction.

Rather than utilizing a treatment in which participants themselves are directly given information or social pressure, the treatments for this experiment instead communicated these messages through story-based texts. This indirect communication to the participant is useful in that it helps reduce possible bias stemming from experimenter demand effects (Stantcheva, 2022).

This approach may also be considered a priming treatment, the purpose of which being to activate a mental concept or mindset through subtle situational cues (Stantcheva, 2022). The use of priming is quite common within economic

experiments, and is particularly useful in the case of assessing the effects of norms and culture. Cohn and Marechal (2016) offer a review of previous economic studies utilizing priming. For example, they describe a study in which the same priming caused Protestant participants to increase, but Catholic participants to decrease, their charitable giving (Benjamin et al., 2016). Similarly, Chen et al. (2014) found that Asian-Americans primed with culturally-specific messaging were more likely to engage in in-group favoritism. The benefit of utilizing priming treatments in the present experiment is they for the measuring of responses to social interactions without the participant knowing what is being measured.

In the case of this specific experiment, the information treatment group is primed by reading a story in which a character ("Sarah") receives information about pornography. This treatment is designed to activate participants' thinking about similar information-based exchanges. Analysis of the effects of this treatment thus amounts to analysis of the effect of such information-based exchanges.

Like the information group, the social pressure group also reads a story. In order to control for participants' previous levels of information, participants in this group read the same information-based story as the information treatment group, and then additionally read a story intended to communicate social pressure. Specifically, the social pressure group reads an exchange between Sarah and Jordan. Importantly, although "Sarah" is a traditionally female name and she/her pronouns are used for her throughout the story, the name "Jordan" was intentionally chosen due to its relative gender neutrality, and the story text avoids using any pronouns for them. This choice was intended to make the reading more relatable to participants of different genders.

The exchange between Sarah and Jordan was intentionally written to communicate positive social pressure about pornography. Specifically, Sarah expresses that she is inexperienced with watching pornography, but that she'd be open to trying it. Jordan tells her that there are plenty of positive ways to explore pornography and that there's a variety of pornography content that she can explore. This social pressure treatment thus allows participants to receive positively-toned information about pornography similar to the king of pressure-based messaging they may receive in a normal conversation.

The social pressure treatment utilized positive, rather than negative, messaging about pornography as another way to reduce experimenter demand bias. Although both positive and negative messaging could potentially create this type of bias, the positive version is less likely to create a sense of self-consciousness among participants that would bias their responses.

The full text of the treatments can be found in the appendix (section 10.3).

4.3 Pornography Vignettes

There have been a number of other studies which have similarly used vignette methodology to measure participant reactions to sexual scenarios. For example, Russell and Gruys (2022) utilize vignettes about a sexually-abuse relationship

between a teacher and student in order to uncover the intersecting impacts of gender, sexuality, and age within the context of sexual abuse. Similar methods are utilized by Coffman (2017) in examining the gendered power hierarchies within sexual relationships. This methodology is generally useful as it allows researchers to explicitly construct scenarios which cannot be recreated in a lab setting or studied in the field.

The vignettes used in this study were previously developed and validated in a three-round Delphi study conducted by Dawson, Noone, Gabhainn, and MacNeela (2020). The primary goal of the original study was to more clearly distinguish between consensual and non-consensual pornography depictions. 7 vignettes from the original study – three consensual, three non-consensual, and one unclear – were selected and presented to participants in a randomized order. Unlike the original study, participants did not rate the level of consent present in the vignette, and instead only rated the level of comfort they'd feel watching a pornography video of the described scenario.

As such, vignettes were grouped together by level of consent present based on the participant ratings in the Dawson et al. (2020) paper.

4.4   Comfort as an Instrument for Choice

While the outcome variable of comfort does not fully capture the decisions that individuals may make in the real world, comfort is significant to an individual's likelihood of making a particular decision. Specifically, when choosing pornography, individuals are selecting a video with the intention of maximizing their overall enjoyment, primarily through sexual arousal. It is well-established that discomfort, in many forms, is a hindrance to arousal (e.g. Graham et al., 2004). As such, participants are more likely to select a certain video over another if they have greater comfort with that video, all else being equal.

To be sure, comfort is certainly not a perfect predictor of actual choice, and should not be thought of as such. Rather, the use of comfort as an outcome variable should be thought of as a significant factor in decision-making, and thus useful in developing an understanding of overall decision-making around pornography. Although potential future studies could perhaps collect real-world data on pornography decisions made in response to social influences, the private nature of pornography consumption makes this type of data extremely difficult to collect.

Despite the drawbacks of using comfort to gain information on decision-making, the survey experiment was intentionally designed to avoid participants having to predict the decisions they'd make in hypothetical scenarios. Specifically, this survey could have instead asked participants, after each pornography vignette, how likely they would be to watch that video in real life. However, this survey design has been widely criticized in that the cognitive decision-making processes in the survey setting are unlikely to be the same as those in the real world, meaning that these types of questions likely produce a set of hypothetical decisions that do not accurately portray how individuals behave in the real world (Hainmueller et al., 2015; Stantcheva, 2022). As such, this survey experi-

ment was intentionally designed to avoid these challenges, thus resulting in the use of comfort as a useful, although imperfect, predictor of decision-making.

5 Results

5.1 Sample Characteristics

The following sub-sections report characteristics of participant responses, including survey-response characteristics, general demographics, and characteristics of participants' sexual habits and accompanying socialization.

5.1.1 Survey Response Characteristics

Participants completed an average of 72.18% of the survey. Of the 302 initial participants, 189 participants completed the entire survey. Removing outliers, participants who completed the whole survey spent an average of 8.5 minutes. Men and women spent roughly the same amount of time completing the survey and were equally likely to complete it once they started.

On average, participants spent 36.17 seconds reading the information condition and 56.89 seconds reading the social pressure condition. Although men and women spent roughly the same amount of time reading the information condition (average of 36.49 seconds for men versus 38.98 seconds for women), there was a significant difference in the amount of time that each gender spent on the social pressure condition (average of 74.77 seconds for men versus 47.16 seconds for women).

5.1.2 General Characteristics

Table 1 presents the gender distribution of the participants.

Table 1: Gender Distribution of Participants

Participant Gender	% of Participants	N
Cisgender Female	35.76	108
Cisgender Male	42.05	127
Non-binary/Other	4.3	13
Transgender Male	1.32	4
Transgender Female	0.66	2
No Response	15.89	48

Due to the low number of transgender men, transgender women, and non-binary/other respondents, for the purposes of later analysis, non-binary participants were excluded, trans and cis women were grouped into one category, and trans and cis men were grouped into one category.

Table 2 presents the racial makeup of the participants.

Table 2: Racial Distribution of Participants

Participant Race	% of Participants	N
White	40.73	123
Asian/Pacific Islander	23.18	70
Multiple/Other	9.6	29
Hispanic	8.28	25
Black	2.98	9
American Indian/Alaska Native	0.66	2
No Response	14.57	44

The mean participant age was 21.04 (sd=1.41). Accordingly, the majority of participants (39.07%, n=118) had completed 3 years of college.

On average, participants rated relatively neutral levels of religiosity (2.77 on a 5-point scale, sd=1.18).

The vast majority of participants attended college in the Midwest (62.91%, n=190), reflecting the fact that the snowball sampling methods were based in that region. However, there were still a number of participants attending college in other regions (12.25% or n=37 Northeast, 2.65% or n=8 Southeast, 2.65% or n=8 West, 2.32% or n=7 Southwest), indicating that recruiting methods successfully reached students beyond this center.

5.1.3 Characteristics of Participant Sexual Habits

There were a number of survey questions about participants' sexuality and sexual habits, their sexual experiences with others, and their knowledge and attitudes toward sex and pornography. It is additionally interesting to note the trends in non-answering for these questions, which may be informative in the construction of future surveys regarding similarly sensitive subject matter.

Participants were asked to indicate their sexuality on a spectrum from exclusively heterosexual to exclusively homosexual. Of the 189 participants who completed the whole survey, a significant proportion (22.19% or n = 67) did not report their sexuality. 23.81% of respondents (n=45) indicated that they were exclusively heterosexual and 4.76% (n=9) indicated that they were exclusively homosexual, with the other 68 participants being on the spectrum between those extremes. Interestingly, the majority of participants who did not report their sexuality were cisgender male (59.7%).

Participants were additionally asked about their previous experiences of sexual assault or harassment. Only 10.19% (n=11) of cisgender female participants had not experienced sexual assault in some form, compared to 25.2% (n=32) of cisgender men. It was much more common for males than females to skip this question, with 61.52% (n=78) of males skipping the question, as opposed to 41.67% of females (n=45). These responses demonstrate that although this issue is quite stigmatized, sexual assault is much more common among men than is generally assumed. These trends, in addition to these significant rates

of non-answering, indicate that there may need to be significant adjustments to the phrasing and structure of questions about sexual assault to ensure that conclusions from these questions are not skewed by issues related to gender.

There were additional non-answering issues in questions that required participants to reflect on their own sexual behaviors. For example, almost 50% of participants (n=145) did not answer the question about how frequently they masturbate, with men and women skipping this question at similar rates.

Aside from these issues of non-answering, the responses nevertheless demonstrate that men and women do have different frequencies of masturbation, with this difference being significant at the 1% level. Specifically, on a 5-point scale between having never masturbated within the past six months and having masturbated more than once a day, the average value for men was 2.9, while the average value for women was 2.44.

Individuals in relationships masturbated significantly less frequently than single participants; women in relationships reported an average frequency of masturbation of 2.11, while women not in relationships reported an average frequency of 2.81. Similarly, men in relationships reported an average frequency of masturbation of 2.57, while men not in relationships reported an average frequency of 3.28. It was relatively uncommon for participants to have watched pornography with a sexual or romantic partner; 52.48% (n=53) of participants had never done so.

Similarly, a significant proportion of participants (53.31% or n=161) did not respond to the question regarding frequency of pornography consumption. Of those that did respond, the average score among men, using the same scale as the previous question, was 2.64, and the average score among women was 1.91, this difference is significant at the 1% level. Men in this study therefore consumed pornography significantly more frequently than women.

As expected, there was a strong, positive correlation between frequency of pornography consumption and frequency of masturbation (r=0.681). Additionally, there was a negative correlation between frequency of partnered sex and frequency of masturbation (r=-0.197), demonstrating that masturbation is effectively a substitute for partnered sex; when the frequency of partnered sex decreases, the frequency of masturbation thus increases. This negative correlation is much stronger among men (r=-0.25) than among women (r=-0.108). There is additionally a negative, although smaller, correlation between frequency of partnered sex and frequency of pornography consumption at the aggregate (r=-0.095), indicating a similar, although less significant, level of substitution between partnered sex and pornography consumption.

5.1.4 Characteristics of Previous Social Interactions

The survey also included questions about participants' social experiences around sex. The key information collected included the frequency of previous conversations, the level of information participants initially had about pornography and/or sexuality, and their previous experiences of social pressure on these topics. As in previous sections, there were high rates of non-answering, the impli-

cations of which are discussed in greater detail in the "Discussion" section.

Due to the effects of pornography in shaping individual attitudes and expectations toward sex, the age at which participants first viewed is significant to later sexual attitudes and habits. In this sample, the most common age at which participants first viewed pornography was 12-13 (22.85%, n=69), and the least common age was over 18 (2.98%, n=9).

Of the 162 participants who responded to the question about previous conversations around sex, the vast majority (88.89%, n=144) agreed that they had discussed their sex lives at least once in the past 6 months. The majority of participants had additionally spoken about pornography (87.95%, n=146) or masturbation (68.33%, n=82) at least once in their lives.

In order to replicate the analysis conducted by Cooper and Klein (2017), the survey also included questions about participants' previous level of information about both sex and pornography. The majority of participants (75.29%, n=128) agreed that they were "pretty educated about sex". Women were significantly more educated than men about sex, with this difference being significant at the 5% level.

The survey additionally asked participants to rate their agreement with the statement "I don't know much about how pornography is made". The distribution of responses to this question is quite interesting, as the rate of disagreement (33.5%, n=54) and the rate of agreement (40.37%, n=65) in the sample are quite similar. As with sexual knowledge, women again tended to be more knowledgeable about the production of pornography than men, this difference being significant at the 5% level.

In addition to participants' level of information regarding sex and pornography, participants' feelings of access to pornography that appeals to them is additionally likely to affect their frequency of porn consumption. The majority of participants (85.37%, n=140) stated that if they wanted to watch pornography they'd know of at least one website where they could likely find content that would appeal to them. Men were significantly more likely than women to feel that they knew how to find pornography that would interest them.

Data was additionally collected on participants' prior experiences of social pressure around sex and pornography consumption. Firstly, the survey included questions regarding participants' feelings of discomfort or guilt, both in regard to watching pornography in general and within specific conversations about sex. The vast majority of participants (69.57%, n=112) stated that they'd felt guilt or shame surrounding their pornography consumption at some point. Perhaps surprisingly, there was no significant difference in men's versus women's mean agreement with this statement. However, it is important to note that the survey asked participants whether they'd experienced guilt or shame at some point, and did not gather information on how frequently or strongly those feelings were experienced, elements which likely vary between men and women. Despite these experiences of guilt, the majority of participants (77.78%, n=105) stated they would feel either comfortable or neutral talking to their friends about sex.

Lastly, the survey asked participants to report their assumptions on how accepted pornography is among their friends and broader social circles. The

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majority of participants (94.41%, n=152) expressed that most of their close friends believe that watching pornography is okay. A similarly significant majority (87.27%, n=144) stated that most of the people in their lives more broadly believe that watching pornography is okay.

5.2 Verification of Cooper and Klein's 2017 Results

The data collected through this survey experiment was intentionally quite similar to the data collected in Cooper and Klein's (2017) survey, and thus may be utilized to verify the original findings about the impact of social variables on pornography consumption among college students. Specifically, logistic regression analysis was conducted to determine whether variables including gender, race, and differential peer association were associated with increased odds of more frequent pornography consumption. Each model was constructed to be as similar as possible to models A, B, and C in the 2017 paper, with some modifications made due to data limitations. As in the original paper, the outcome variable for the logistic regression analyses described in this section was the dichotomous variable capturing frequency of pornography consumption, in which all responses other than "never" were grouped together. Table 3 presents the results of the logistic regression analysis by displaying the odds ratios for the three models.

Table 3: Odds Ratios for Visiting a Pornography Site

Variable	Model A (se)	Model B (se)	Model C (se)
Gender (Male)	**4.225***	2.655	2.593
	(3.034)	(2.999)	(4.553)
Age	1.389	0.857	0.575
	(0.697)	(2.042)	(2.481)
Race (White)	0.798	1.309	0.815
	(0.520)	(2.707)	(4.039)
Religious	1.065	1.511	1.570
	(0.282)	(1.446)	(1.570)
College Completed	0.517	0.454	4.611
	(0.338)	(2.932)	(3.362)
Sexuality	1.344	0.848	0.552
	(0.332)	(1.389)	(1.504)
Frequency of Alcohol Consumption	**3.303****	2.518	4.151
	(1.442)	(1.723)	(2.084)
Number of Sexual Partners		1.143	1.107
		(1.464)	(1.641)
In Committed Relationship		2.263	7.750
		(3.304)	(5.153)
Frequency of Partnered Sex		0.954	0.917
		(1.428)	(1.548)
First Age of Pornography Use		1.130	1.600
		(1.464)	(1.687)
Frequency of Masturbation		**5.621****	**17.888****
		(1.764)	(2.599)
Discussed Pornography			2.305
			(1.751)
Discussed Sex			1.101
			(2.342)
Friends feel okay about pornography			3.757
			(2.035)
People feel okay about pornography			2.257
			(1.838)
Intercept	0.001	0.228	1.01e-04
	(0.011)	(2.85e+05)	(9.96e+06)
X^2	60.113	48.039	104.919
Degrees of Freedom	7	12	16
Number of Observations	68	58	58

Note: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Unfortunately, due to the relatively small sample size (n=302) and the rela-

tively high rates of non-answering of the relevant questions, many of the variables in these models fail to reach significance. Regardless, it is nevertheless useful to compare the value of the coefficients to those in the initial study and to investigate which variables do reach statistical significance.

As in the original paper, the independent variables in regression model A were limited to general structural measures. In this model, only frequency of alcohol consumption, which was positively associated with higher odds of pornography usage, was statistically significant. However, the values of the other variables are consistent with the findings of the original study; participants who were male, non-white, older, religious, homosexual-leaning, and consumed more alcohol had higher odds of watching pornography.

Model B included the same independent variables as model A, as well as a number of other variables measuring sexual activity and romantic relationships. The only variable in this model which reached statistical significance was frequency of masturbation, which, as in the original paper, was significantly related to greater odds of watching pornography. Of the other variables in this model not included in model A, number of sexual partners, being in a relationship, and age at first pornography usage were also associated with higher odds of pornography consumption. In contrast to the original paper, a greater frequency of partnered sex corresponded to slightly lower odds of viewing pornography, although this result was not statistically significant.

Lastly, Model C included the same predictors as models A and B, as well as variables related to social learning. Due to the differences in the data collected in this study versus the original, the social variables included in this analysis were not exactly the same, although they are sufficiently similar such that the results will be comparable. Specifically, the original model utilized the social learning variables differential peer association, differential reinforcement, imitation/modeling, and definitions favorable. In contrast, this analysis utilized data on whether the participant has spoken to someone about sex or pornography, and whether they feel that friends and others in their lives would feel positively about pornography. Although none of these new variables reached statistical significance, they all were associated with greater odds of pornography consumption. This finding indicates that, as in the original study, these social learning variables were significantly associated with pornography consumption.

Overall, although the direction of effects are overall quite consistent between the present study and the Cooper and Klein (2017) study, the unfortunate lack of statistical significance in the present study makes interpretation of these results difficult.

5.3 Justification of Vignette Use

The Dawson et al. (2020) vignettes are useful in that they provide a set of previously-tested scenarios, and also in that the groupings by consent from the original study provide an additional dimension for analysis. Specifically, the fact that the level of consent has already been validated allows for the analysis of the treatment effects in this study not only in the aggregate, but for specific

levels of consent as well.

While the present study did not explicitly ask participants to indicate the level of consent they believed to be present in each scenario, the findings related to comfort are consistent with the consent findings in Dawson et al. (2020). Specifically, figure 1 demonstrates that, for all participants, the level of comfort reported for consensual scenarios is significantly higher than for non-consensual scenarios. As participants are more likely to rate higher levels of comfort with the consensual scenarios, these differences in comfort levels indicate that the participants in this study did implicitly interpret similar consent levels to the participants in Dawson et al. (2020). As such, analysis can be conducted not only in the aggregate, but also for specific consent levels.

Figure 1: Comfort with Consent Levels in Scenarios Described
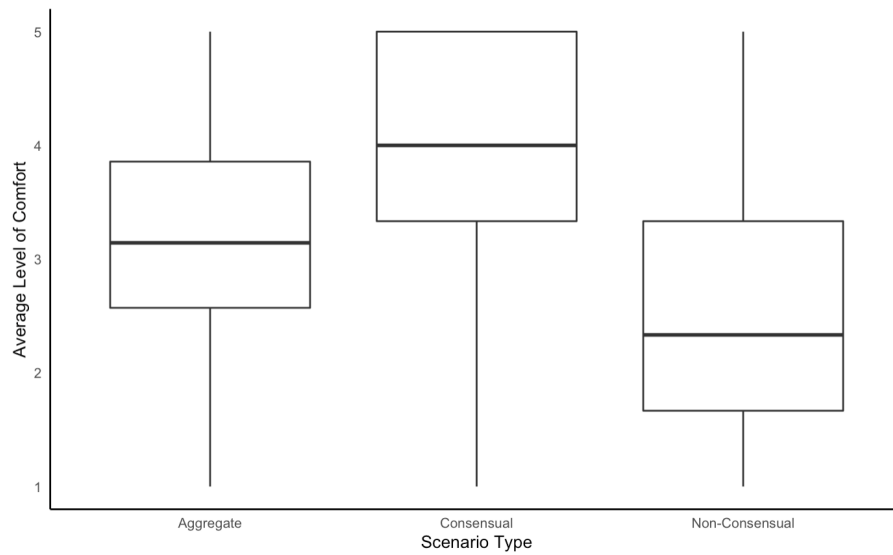
Further, the distribution of responses for each question demonstrate that every scenario in each of the three consent levels communicates the desired messaging among participants. Figures 2, 3, and 4 present the responses for consensual, non-consensual, and unclear scenarios, respectively. In each figure, the name in the label represents the name of the main character in each scenario.

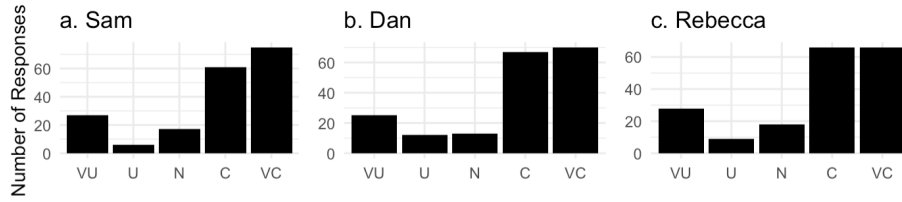Figure 2: Comfort with Non-Consensual Scenarios
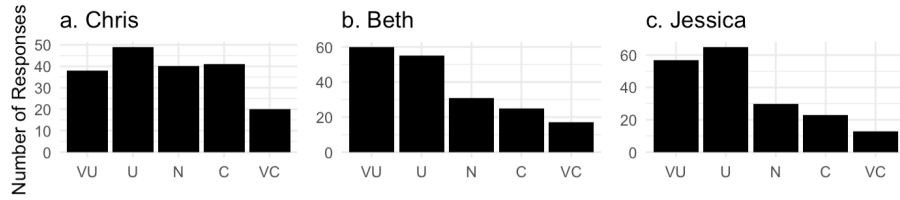
Note: VU = very uncomfortable, U = uncomfortable, N = neither
comfortable nor uncomfortable, C = comfortable, VC = very comfortable

Figures 2b and 2c clearly demonstrate the high rates of discomfort reported in response to the "Beth" and "Jessica" scenarios. Figure 2a is slightly more complex. Although the figure demonstrates the high rates of "very uncomfortable" and "uncomfortable" responses, the distribution is less strongly skewed toward discomfort than with figures 2b and 2c. In interpreting this difference, it's relevant that, while certainly lacking consent, the "Chris" scene describes a less sexually-explicit scenario than the others (over-the-pants touching as opposed to touching of exposed genitalia with the hands/mouth). As such, it's logical to explain this difference in comfort distribution as reflective of the difference in explicitness of the scene described.

There are a few key dimensions consistent across both the Beth and Jessica scenarios which make the similarity of distribution of comfort with these scenarios quite interesting. Firstly, the Beth scenario describes a sexual scene between two women, while the Jessica scenario describes a scene between a man and a woman. Regardless of this difference, participants who indicated sexuality closer to strict homosexuality did not indicate significantly different comfort levels with the "Beth" scenario compared to participants closer to strict heterosexuality. In contrast, comfort ratings for heterosexual-leaning and homosexual-leaning respondents did differ slightly for the "Jessica" scenario, with heterosexual-leaning respondents reporting higher average comfort (2.439 versus 1.921 on a 5-point scale, p< 0.01). This lower comfort with the non-consensual heterosexual scenario among homosexual-leaning respondents may capture the fact that these respondents are likely less comfortable with the heterosexual nature of this scenario overall, as well as with the specific lack of consent in the scene. The fact that rates of non-answering for the comfort questions among homosexual-leaning individuals were significantly higher than for heterosexual-leaning individuals by about 20% provides additional potential evidence that homosexual-leaning participants were generally uncomfortable with the volume of heterosexual scenarios described.

Due to the limited number of non-consensual scenarios described, it is difficult to establish whether men were more uncomfortable with scenarios of men being violated, or vice versa, although this would be an interesting question to return to in future research.

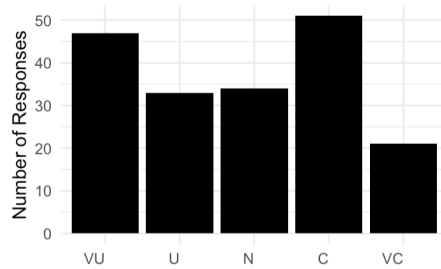Figure 3: Comfort with Consensual Scenarios

Note: VU = very uncomfortable, U = uncomfortable, N = neither comfortable
nor uncomfortable, C = comfortable, VC = very comfortable

Figures 3a, 3b, and 3c show that the distribution of levels of comfort was quite similar for each of the three consensual scenarios described. It is important to note that all of the consensual scenarios described were between a man and a woman. In the future, it would be useful to analyze differences in response for descriptions of non-heterosexual scenes.

Lastly, in addition to the consensual and non-consensual scenarios described, one scenario was included that was labeled by the participants in Dawson et al. (2020) as being "unclear" in terms of level of consent present. The distribution of responses to the "unclear" scenario is shown in figure 4.

Figure 4: Comfort with Unclear Consent Scenario

Note: VU = very uncomfortable, U = uncomfortable, N = neither comfortable
nor uncomfortable, C = comfortable, VC = very comfortable

The distribution in figure 4, unlike in figures 2 and 3, is not clearly skewed toward a specific comfort ranking. In fact, there were almost equally high frequencies of "very uncomfortable" and "comfortable" ratings. This distribution of responses in figure 4 reflects, consistent with the original study, a general lack of consensus as to the level of consent present.

Figures 2, 3, and 4 thus demonstrate that each of the seven questions were interpreted by the participants in the present study similarly to the participants in Dawson et al. (2020), thus indicating that all seven questions are useful dimensions for analysis.

5.4 Participant Perceptions of the Treatments

Before considering the effect of the treatments on the outcome variables of interest, it is first necessary to establish that the treatments did, in fact, communicate the desired messaging. Specifically, the information condition was intended to convey neutrally-toned, objective information about pornography, while the social pressure condition was intended to convey positive messaging. Properly separating the information and social pressure components into the two separate treatments is crucial to the central purpose of this research, which is to determine the effect of each separate component.

In order to determine whether the treatments conveyed the desired messages to participants, the survey included a question designed to check participants' perceptions of the characters in the story. After reading the information or social pressure conditions, participants were asked to read and rate their agreement with the following statement: "After this interaction, Sarah probably feels more positively about pornography than she did before". Since the social pressure condition was intentionally written to convey positive messaging about pornography while the information pressure was written to be neutral, if the conditions had conveyed the correct message, agreement with this question should be higher among the social pressure group than the information group.

As expected, participants in the social pressure group rated significantly higher agreement with this statement than participants in the information group (4.06 versus 3.043 on a 5-point scale). Further, this level of agreement with the statement among the information group implies that participants believed that the character "Sarah" felt roughly the same after this interaction that she did prior to it. This response thus implies that the information condition, as intended, communicated information without presenting social pressure in either the positive or negative direction.

The treatments were therefore successful at breaking down the elements of social interactions into their information and social pressure components.

5.5 Treatment Effects

The primary outcome of interest in this study was whether the treatment (information, social pressure, or control) had a significant effect on participants' level of comfort. Before beginning analysis on the effects of the treatment, responses were filtered to include only those in which participants spent at least 20 seconds (information) or 30 seconds (social pressure) reading the assigned treatment.

Figure 5 and figure 6 present, respectively, the mean and median level of comfort by treatment group by each type of scenario (consensual, non-consensual, unclear) and at the aggregate.

Figure 5: Average Comfort with Scenarios by Group and Consent Level
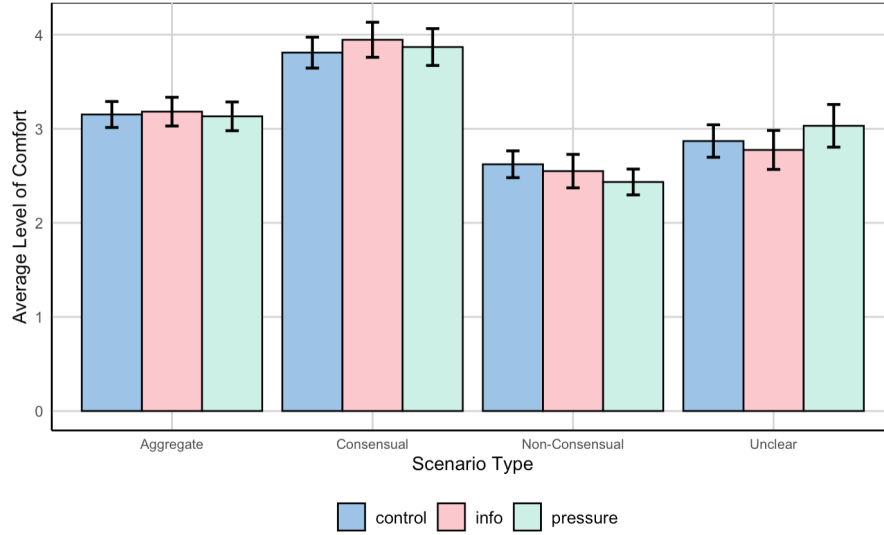
Note: "info" represents the group that read the neutral information treatment. "pressure" read the positive treatment.

Figure 5 demonstrates that there is no significant change in the mean level of comfort related to the treatment. This result is observed for the average comfort across all seven vignettes, only the consensual vignettes, only the non-consensual vignettes, and the unclear vignette.

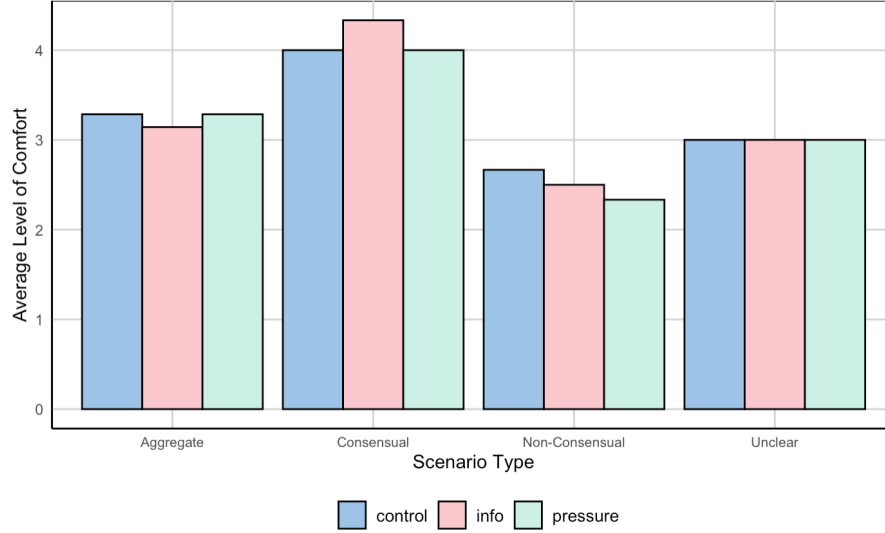Figure 6: Median Comfort with Scenarios by Group and Consent Level

Figure 6 demonstrates that there was additionally no significant change in median comfort associated with the treatments. This finding was consistent at the aggregate and by level of consent.

Overall, the treatment thus had no significant effect on participants' comfort levels across these metrics. This result was unexpected, and further analysis was conducted to determine whether the treatment had a significant effect on comfort for any particular sub-groups within the sample.

5.5.1 Gender Differences in Treatment Effects

Although the treatments had no statistically significant effects on each group's mean or median comfort overall, further investigation revealed that there were, in fact, significant differences between the treatment and control groups when the groups are examined separately by gender.

Figure 7 and the corresponding table present the comfort ratings by treatment group and consent level for only male participants.

Figure 7: Mean Comfort with Scenarios by Group and Consent Level for Male Participants
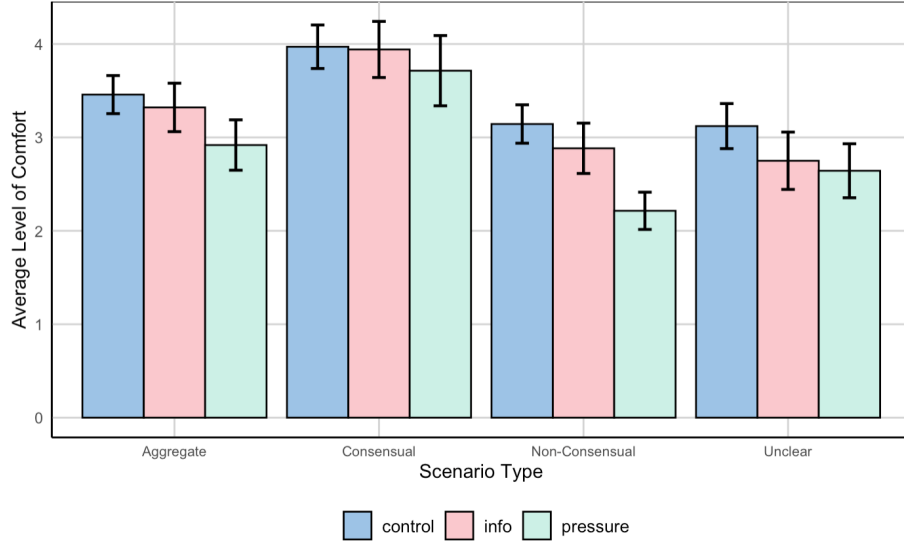

Table 4: Mean Comfort by Consent Level and Group for Male Participants

Consent Level	Control	Information	Social Pressure
Aggregate	3.518	3.270	**2.918**
Consensual	4.029	3.912	3.714
Non-Consensual	3.152	2.870	**2.214**
Unclear	3.086	2.750	2.643

Note: Bolded entries were different from the control group at the 5% level

As demonstrated by these figures, for each dimension of analysis (aggregate, consensual, non-consensual, and unclear), both treatments decreased men's level of comfort, with the social pressure condition reducing average comfort more than the information condition. Importantly, the only differences between treatment and control levels of comfort that were significant at the 5% level were social pressure at the aggregate and social pressure for non-consensual scenarios. For the other treatment groups and analysis dimensions, although we see a slight decrease from the control comfort level in each case, these changes are not statistically significant.

Figure 8 and the corresponding table present the same information for only female participants.

Figure 8: Mean Comfort with Scenarios by Group and Consent Level for Female
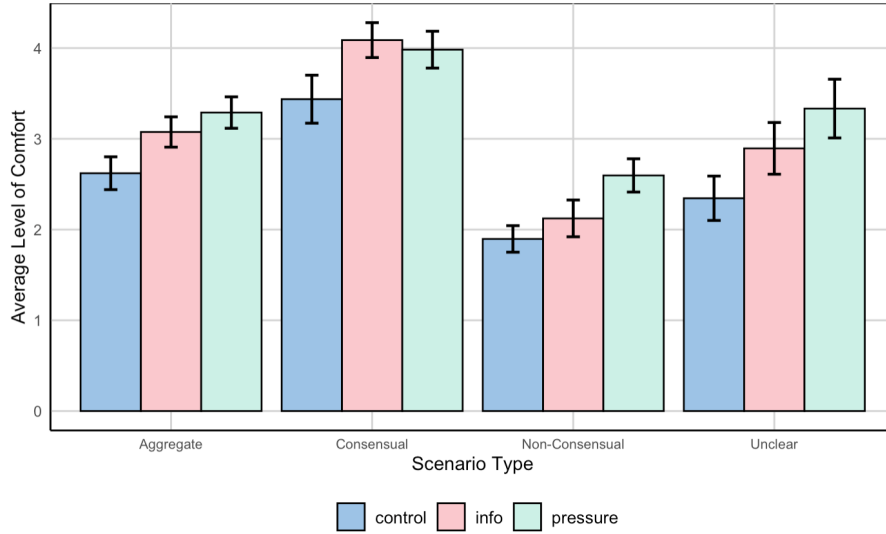Participants

Table 5: Mean Comfort by Consent Level and Group for Female Participants

| Consent Level	Control	Information	Social Pressure
Aggregate	2.621	**3.043**	**3.333**
Consensual	3.437	**3.950**	**4.037**
Non-Consensual	1.897	2.217	**2.630**
Unclear	2.344	2.800	**3.333**

Note: Bolded entries were different from the control group at the 5% level

As these figures demonstrate, among female participants, each treatment increased comfort, with the social pressure condition increasing comfort more than the information condition. The comfort levels of the social pressure group were significantly different from the control for all 4 dimensions of analysis. Additionally, the information and control groups were significantly different at the 5% level for the aggregate and consensual dimensions of analysis.

These findings thus indicate that both the information and social pressure treatments had directly opposite effects on men and women. These findings thus reveal that men and women responded to the treatment in opposite ways. Possible reasons for these opposite effects are discussed in the following section.
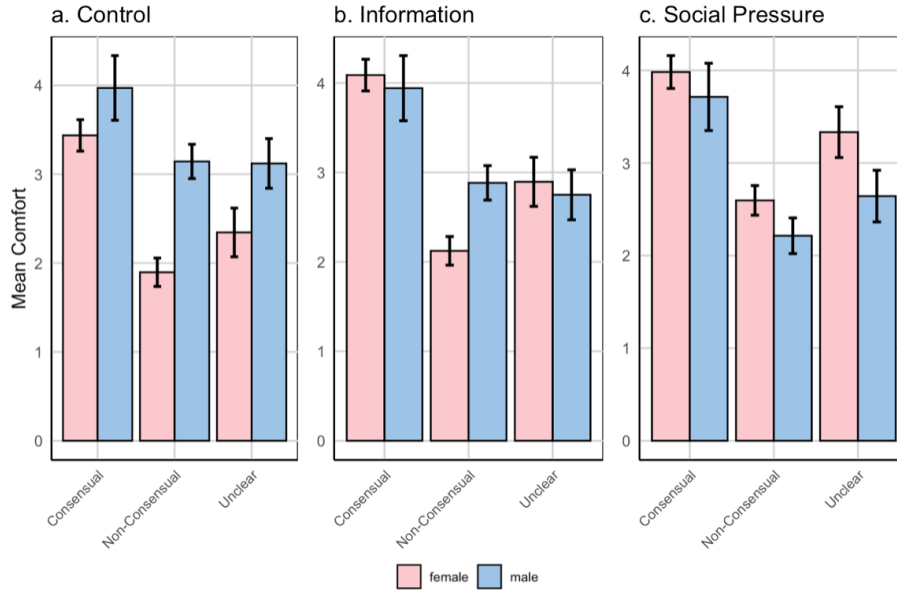
Men and women also had significant differences in comfort with each scenario, regardless of the treatment. Figure 9 presents comfort ratings for all participants, not grouped by treatment. The figure shows that men rated higher comfort with the described videos at each consent level.

Figure 9: Average Comfort for all Groups by Gender
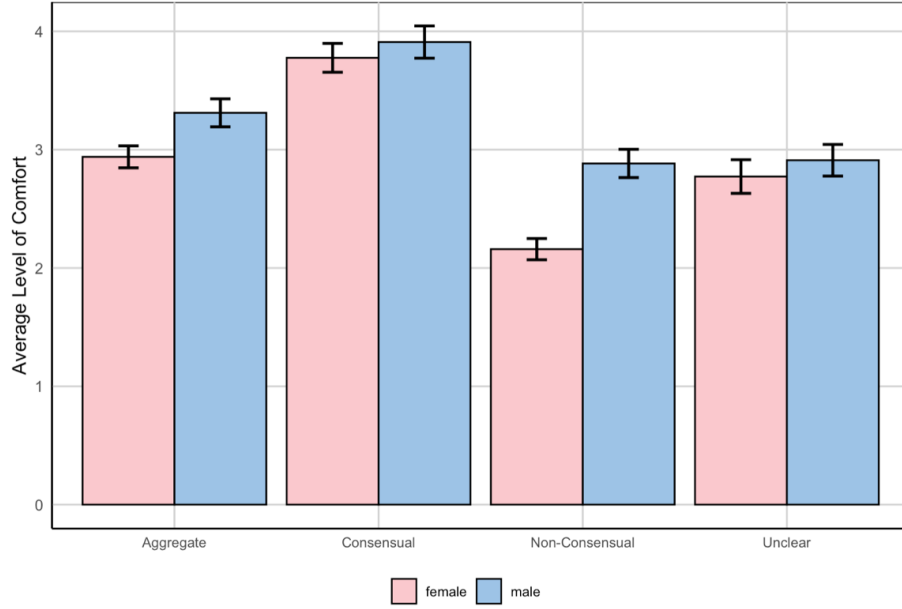
Since the treatment effects for men and women were in opposite directions, despite having significantly lower comfort in the overall group, women actually reported higher comfort than men in the same treatment group for some scenarios. Figure 10 presents the average comfort of male and female participants by treatment group.

Figure 10: Average Comfort by Gender and Group

These results thus demonstrate statistically significant differences in comfort between men and women within the same treatment groups for almost every dimension of analysis. In the control group, men rated significantly higher comfort than women for all consent levels. In the information treatment, men still rated higher comfort with the non-consensual scenarios, but women rated higher comfort with the consensual and unclear scenarios. Lastly, women in the social pressure group rated higher comfort than men in the social pressure group for all three consent levels.

The following section presents possible explanations and implications of these results.

6   Discussion

As outlined in the previous section, male and female participants thus responded in direct opposite ways to the information and social pressure treatments. Specifically, men's comfort was lower in the information treatment than in the control group, and even lower in the social pressure group. Women's comfort was higher in the information treatment than in the control group, and even higher in the social pressure group. There are a number of potential explanations for this finding which would be useful to explore through future study. Overall, it is likely that men and women reacted differently to the treatments due to various gendered differences in their previous sexuality-related social

interactions.

It is important to note that, while this study utilizes comfort as an instrument for participant choice, this strategy has not been previously validated in the specific context of pornography consumption. As such, while it is nonetheless useful to consider these results in terms of their implications for participants' actual pornography decision-making, it is additionally necessary to consider the ways in which participants' responses may reflect their specific reactions to the study format.

6.1 Gendered Differences in Reactions to Guilt or Shame

For one, the results of this study indicate that men and women tend to respond differently to feelings of guilt related to watching pornography. While men and women did indicate similar levels of agreement with the statement "at some point in my life I've felt guilt or shame for watching pornography," the phrasing of this question may mask gendered differences in experiences of guilt or shame. Specifically, the survey unfortunately did not include questions about the prevalence or frequency of guilt or shame in participants' pornography or sexual experiences, but rather only asked participants whether they'd felt guilt or shame at some point.

The data collected is nonetheless useful in establishing the ways in which feelings of guilt or shame affected participants' responses to the assigned treatments. Table 6 presents the results of the regression analysis demonstrating the different ways that men's and women's reactions to the treatments were affected by guilt.

Table 6: Regression Analysis Results for Aggregate Comfort with all Scenarios

Variable	Male (se)	Female (se)
Intercept	**3.7937*****	**2.3714*****
	(0.349)	(0.354)
Treatment	0.7063	**0.8735**.
	(0.706)	(0.463)
Guilt	-0.4105	0.4000
	(0.415)	(0.395)
Treatment*Guilt	-0.9796	-0.3015
	(0.873)	(0.519)
Adjusted R-Squared	0.03976	0.1118
F-Statistic	1.801	3.392
Number of Observations	55	54

Note: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, . $p < 0.1$

In this table, "treatment" is a binary variable capturing whether or not the participant was in one of the treatment groups. The two treatment groups were grouped together for this part of the analysis since the direction of effects

was the same for both groups. "Guilt" was a binary variable equal to 1 if the participant agreed with the statement that they had felt guilt or shame for watching pornography and equal to 0 otherwise. The treatment*guilt term captures the interaction between these variables.

Due to the relatively small sample size and high rates of non-answering, the results of this regression analysis were not statistically significant and should therefore be interpreted with caution. These results demonstrate that, although the treatment only caused an increase in aggregate mean comfort for female participants, the treatment also resulted in an increase in comfort for low-guilt participants. For both men and women, having high guilt resulted in the treatment having a negative effect on aggregate comfort. For women, this negative effect was sufficiently small such that the treatment nevertheless positively impacted comfort. In contrast, for men, the value of this negative effect was sufficiently large such that male participants who did experience guilt or shame reported a decrease in comfort.

These results thus demonstrate that feelings of guilt resulted in lower comfort ratings among men, but not among women. Although future work is needed to investigate whether these findings persist in a larger sample, the results of this study indicate that men and women respond differently to feelings of guilt around pornography.

Analyzing the data obtained in this study through a triple difference model further emphasizes the different ways that male and female participants' guilt affected their levels of comfort. The following table presents the results of the regression analysis conducted using this triple difference model. Since the most significant changes in comfort were observed for the consensual scenarios, the following table utilizes comfort with the consensual scenarios as the outcome variable, instead of the aggregate comfort outcome variable used in the previous table.

Table 7: Triple Difference Model Analysis for Comfort with Consensual Scenarios

Variable	Estimate (se)
Intercept	**2.6000***** (0.458)
Treatment	0.4000 (0.748)
Guilt	0.4374 (0.510)
Male	**1.2214.** (0.687)
Guilt*Treatment	-0.2628 (0.817)
Treatment*Male	0.3024 (1.082)
Guilt*Male	-0.9612 (0.752)
Guilt*Treatment*Male	-0.5833 (1.185)
Adjusted R-Squared	0.02274
F-Statistic	1.299
Number of Observations	83

Note: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, . $p < 0.1$

In the table above, "treatment" is again a binary variable equal to 1 if the participant was in the information or social pressure groups. Again, due to the limited sample size, the majority of the coefficients in this model do not reach statistical significance and therefore should be interpreted with caution.

The results of this analysis nevertheless support the earlier finding that guilt affected how male and female participants responded to the treatment in different ways. Specifically, these results demonstrate that being in the treatment group, experiencing guilt, and being male all had positive effects on reported comfort level. However, the interaction between the guilt and male variables is sufficiently strong such that, for treated males who have experienced guilt or shame around pornography, these interaction effects result in an overall decreased level of comfort. Therefore, these results demonstrate that although the treatment results in lower levels of comfort for both guilty men and guilty women, the size of this effect is only sufficiently large to reduce reported comfort among men.

Although further work would be necessary to test this hypothesis, this finding may reflect the differences in societal norms around men's versus women's pornography consumption. Specifically, pornography has traditionally been pro-

duced with a male audience in mind. The majority of pornography consumers are male, and women often find it challenging to find pornography that appeals to them (see the "Characteristics of Previous Social Interactions" section).

Particularly among college students, current contemporary trends often promote women's sexual self-exploration. These trends encourage women to explore their sexuality, including through masturbation. The feminist and the ethically-produced pornography movements discussed earlier, for example, are largely aimed at producing pornography that appeals to women, and thus aims at providing women with new forums through which to explore their sexuality. While this encouragement of women's sexual exploration may not be as prominent in the broader population, since this sample included only college students, it is likely that female participants had been exposed to this type of messaging. Since pornography has historically been a male product, there has been little similar promotion of men's pornography consumption.

6.1.1 Resulting Effects on Participants in the Social Pressure Group

As such, it is likely that female participants had themselves experienced social interactions similar to the one described in the social pressure treatment. In fact, this treatment was specifically written to imitate a conversation that college students would likely have amongst themselves. Upon reflection, however, the described conversations were likely more relatable to female than to male participants.

As such, it is possible that female participants' familiarity with the described social interaction thus allowed them to internalize the positive message of the treatment, leading them to higher levels of reported comfort. Assuming the comfort outcome variable to be a reasonable predictor of real-world decision-making, this finding implies that positive peer-based messaging about pornography may lead women to experience greater comfort with specific pornography videos, perhaps leading to greater overall pornography consumption.

In contrast, male participants may not have been previously exposed to these types of positive conversations about pornography among peers. As such, being exposed to any of this explicit communication, regardless of its positive leaning, could perhaps have made male participants more self-conscious about their pornography consumption. Therefore, the lack of familiarity with the described scenarios may have resulted in the non-internalizing of the positive messaging of the treatment, which, combined with the resulting increase in self-consciousness, may have resulted in men's lower reported comfort. If the comfort variable is again assumed to be predictive of real-world pornography-related decision-making, this finding would imply that exposing men to non-neutral pornography messaging may make them increasingly self-conscious about their consumption, leading to lower comfort with specific pornography videos and therefore perhaps lower overall pornography consumption.

6.1.2 Resulting Effects on Participants in the Information Group

The effects of these gendered differences in previous pornography messaging may have additionally affected participants in the information treatment. Specifically, as established in the "Characteristics of Previous Social Interactions" section, women tend to be more informed about pornography and its production than men. As such, it is likely that the setting of the information treatment was more familiar to female than male participants.

It is therefore likely that female participants' familiarity with this setting thus allowed them to process the information being communicated and for that information to therefore affect their responses. Assuming again that the comfort variable is a useful predictor of decision-making, this finding implies that information-based pornography messaging increases women's comfort with specific pornography videos, and therefore may increase their overall levels of pornography consumption.

In contrast, as with the social pressure treatment, the information treatment may have brought up both a social setting and informational content that were less familiar to male participants. As such, this receiving of new information in an unfamiliar setting may have again made male participants more self-aware and therefore more self-conscious of their own pornography consumption. If comfort is an accurate predictor of real-world pornography decisions, presenting male participants with information about pornography in an unfamiliar context may decrease comfort and therefore level of pornography consumption.

6.2 Separating Comfort with Survey-Taking from Comfort with Described Scenarios

Even without assuming that the comfort variable used in this study is a useful predictor of real decision-making, the differences in male and female comfort responses nevertheless provide useful information about how participant sexual and pornography-related information should be collected in future studies. Specifically, analysis of the results demonstrates that the gendered differences in familiarity with the interactions described in the treatments may have increased both men's and women's comfort with the survey-taking process.

In this section, survey-taking comfort is measured by the number of questions participants left unanswered after reading the assigned treatment. This measure is logical since participants who were more uncomfortable with the assigned reading would be more likely to leave questions blank or to quit before the end of the survey entirely.

Overall, the number of questions left unanswered after the comfort ranking questions were quite similar for male and female participants. The average female participant left 20.50 questions unanswered after that point, compared to 20.92 for male participants.

However, there were, in fact, differences in the amount of non-answering after this point by treatment group. The following statistics of non-answering include only the participants whose responses were included in the group-specific

analysis (ie. who spent at least 20 seconds reading the information condition and at least 30 seconds reading the social pressure condition).

Among male participants, the treatment did not lead to an increase in unanswered questions. In fact, males in the treatment group left fewer questions unanswered than those in the control group (the mean number of unanswered questions after the comfort ratings was 15.55 for the control group, 14.96 for the information group, and 6.60 for the social pressure group). Using these rates of non-answering as a substitute for comfort with taking the survey, these statistics demonstrate that reading the treatment conditions did not make male participants less comfortable with taking the survey, and, in fact, arguably made them more comfortable.

These findings imply that males' reduced comfort levels after reading the treatment conditions cannot be explained by a decrease in survey-taking comfort. These results thus indicate that this decrease in reported comfort among males reflects an actual decrease in comfort with the specific described video, rather than merely with the survey-taking process.

For female participants, the non-answering metric reveals that those treated were more comfortable with the survey-taking process (for female participants, the mean number of unanswered questions was 15.73 among the control group, 11.16 among the social pressure group, and 8.48 among the information group). This increase in comfort may potentially be attributed to the fact that, since women are likely accustomed to the types of interactions described in the treatments, reading about a familiar scenario made them more comfortable with the process of taking the survey.

Since the treatment did result in increased survey-taking comfort for female participants, the previously-stated result that the treatment increased comfort among women should be interpreted with caution. Specifically, that increase in self-reported comfort likely captures the fact that female participants became more comfortable with the survey-taking process itself, in addition to any potential increase in comfort with the actual described scenarios.

To be sure, there are a number of possible other explanations for the lower rates of non-answering among treated participants (e.g. perhaps treated participants were more invested in the survey). Nevertheless, these results demonstrate the importance of creating a survey-taking experience that is as consistent as possible across participants in order to produce causally-interpretable results.

6.3   Potential Explanations for Gender Differences in Comfort with Non-Consensual Scenarios

The results of the survey indicate that men in the control group had much higher comfort with the non-consensual scenarios than women (3.152 versus 1.897 on a 5-point scale). Since the information treatment increased comfort for women and decreased comfort for men, the male and female averages are more similar in the information group, with men nevertheless rating higher comfort with the non-consensual scenarios (2.870 versus 2.217). Since comfort continued to increase for women and decrease for men in the social pressure

condition, women in this treatment actually rated higher comfort with the non-consensual scenarios than men (2.630 versus 2.214).

Since participant comfort levels remained consistent regardless of the gender of the victim and perpetrator, the gender of participants involved was likely not a significant contributor to the different levels of comfort observed across treatment groups. The following sections outline potential explanations for these observations.

6.3.1 Exposure to Sexual Assault

The observed gender differences in comfort with the non-consensual scenarios may reflect differences in participants' previous exposure to sexual assault. As mentioned in the "Characteristics of Participant Sexual Habits" section, 48.15% of female respondents, compared to 17.32% of male respondents, had been sexually assaulted. This difference likely contributed to the significantly lower reported levels of comfort with non-consensual scenarios among women, compared to men, in the control group. Specifically, participants who have personally experienced sexual assault may be particularly sensitive to the non-consensual videos, as they may bring up negative feelings or memories about their own personal experiences.

Consistent with the greater prevalence of sexual assault among women, women additionally tend to discuss sexual assault more frequently than men (Barone et al., 2007). These differences in previous assault experiences and interactions may have additionally caused differences in comfort with the non-consensual scenarios. Although the treatment conditions did not explicitly discuss non-consensual sex, the messaging they evoked may have nevertheless been impacted by such experiences.

Specifically, since women are more accustomed to speaking about sexual assault with peers, the information and social pressure treatments likely did not lead them to consider the non-consensual sex described in any particularly new ways. Rather, their comfort levels remained consistent with the trends in comfort for the other scenarios.

In contrast, since men are less likely to have discussed sexual assault with peers, it is logical that any socialization treatment would result in their being more conscious of the non-consensual acts described in those scenarios. In other words, it is possible that the treatments led to an increase in self-awareness that was new for male, but not female participants, resulting in male participants' increased discomfort with the non-consensual scenarios.

6.3.2 Previous Exposure to Non-Consensual Sex in Pornography

The data collected in this study demonstrates that individuals who have high frequencies of pornography consumption tended to be more comfortable with the non-consensual sexual scenarios (r=0.33). Since male participants in this sample consumed pornography much more frequently, it is likely that this higher frequency of pornography consumption by male participants contributed to the

control group's higher comfort with non-consensual scenarios. This finding can potentially be explained by the prevalence of sexual violence in internet pornography, as outlined in the introduction. Because of these frequent depictions of non-consensual sex in pornography, frequent viewers of such pornography, particularly males in this sample, may be desensitized to these behaviors. As such, the higher rates of comfort among males in the control group may reflect men's relative desensitization to witnessing unwanted sex in pornography.

This explanation would be consistent with the proposed explanation for the changes in comfort among treated men and women as being reflective of differences in both personal sexual assault experiences and corresponding social interactions.

6.4 Characters' Gender and Sexuality in the Treatments and Vignettes

The gender of the characters described in the treatment conditions and in the pornographic vignettes likely had an effect on participants' ability to relate to the characters and to imagine themselves in the necessary hypothetical situations.

Exposure to the information and social pressure treatments may have reduced men's discomfort relative to women's due to the gender of the individuals described. The main character, "Sarah", is described with she/her pronouns throughout both treatments. The gender of the second character introduced in the social pressure condition is left purposefully unclear through a gender-neutral name and lack of pronouns. Due to the female and unclear genders of these characters, men may have identified less with the described social experience. Such a disconnect would have resulted in less of an internalization of the described neutral or positive attitudes. Instead, male participants may have experienced an increased sense of self-consciousness due to a sense of removal from the described situation. Since the treatments were specifically designed to be familiar and relatable, such a disconnect would have a significant impact on the survey results. In similar future work, it would be useful to consider how matching the gender of individuals in the treatment to the gender of the participant would affect survey responses.

Lastly, individuals may have had difficulty describing their level of comfort with scenarios that did not align with either their personal sexual preferences or their sexual preferences within pornography. Aside from one non-consensual scene between two women, all of the relationships described in the vignettes were heterosexual. While this lack of variation makes it difficult to discern the possible effects of mismatches between participant sexual orientation and the described sexual orientation, the distribution of responses to the non-consensual lesbian scene described may provide some initial insight.

Overall, straight-leaning women tended to be less comfortable with the described non-consensual lesbian scenario than gay-leaning women; the average comfort with this scene was 2.19 for gay-leaning participants and 1.895 for

straight-leaning participants, although this difference is not statistically significant at the 5% level. This statistic may perhaps indicate that straight-leaning participants' discomfort with this scenario reflects both their discomfort with the non-consensual scene overall, but also this misalignment with their own sexual preferences.

Further, the lack of variation may have contributed to the high rates of non-answering of the comfort-rating questions. As mentioned in the "Justification of Vignette Use" section, gay-leaning participants tended to leave a higher proportion of the comfort rating questions unanswered, even among participants who successfully completed the survey. This trend may indicate that asking about participants' comfort with watching scenarios they wouldn't watch in real life makes the question unnecessarily difficult for them to answer, leading to the high rates of non-answering.

However, this finding should not be interpreted as evidence that future similar work should only investigate participants' reactions to pornography that aligns exactly with their own sexual preferences, as it is quite common for individuals to prefer watching pornography that does not necessarily align with preferences for their own sex. For example, if a heterosexual man prefers to watch lesbian porn, his reactions to only heterosexual scenes would not accurately reflect his behavior in the real world, in which he may never come across or seek out heterosexual content. As such, it may be helpful in future work to develop an understanding of how participants react to descriptions of pornography that don't necessarily interest them sexually. Such information would be extremely valuable to developing a better understanding of what these comfort ratings actually capture.

7 Limitations and Directions for Future Research

This study encountered a number of limitations and challenges which may be useful in informing future related work.

Firstly, the sample for this study consisted of, mainly Midwestern, college students. Due to the snowball sampling methods utilized for recruitment and the related issues of self-selection, it is likely that participants in this study were generally more interested in the content matter of this survey than the general population. While the conclusions presented in this paper are not generalizable to a real-world, non-college sample, the consistency between the findings in the present study and those in Cooper and Klein (2017) indicate that these findings are potentially generalizable to a college student population. Regardless, given the relative scarcity of previous research on the relationship between social interactions and pornography consumption, further research is certainly needed to confirm the findings presented in this paper.

Further, the previous section included in-depth discussion of a number of the challenges with the methodology of the present study, including gender differences in survey-taking comfort and the gender and sexuality of characters described. As captured in this section, these issues may have affected both

participant responses and the rates of non-answering.

In addition to these aforementioned issues, the remainder of this paper presents a discussion of a number of other methodological challenges encountered in this study and their implications.

For one, this study should have provided the control group with a reading unrelated to pornography. This change would be necessary to ensure that the observed treatment effects were due to the content of the treatments rather than the act of reading itself.

Relatedly, it would be useful for future studies aimed at examining the effects of information and social pressure to consider how these two aspects may be best separated from each other, while still portraying a realistic social interaction. This study utilized story-based texts to communicate these elements. In the information condition, a character is given neutral information through a pamphlet. In the social pressure condition, participants read the exchange involving the pamphlet, and additionally read dialogue of a non-neutral exchange about pornography.

As verified through a check of participant takeaways from these readings, the treatments were successful at separating the informational and social pressure components of social interactions. However, while they both may capture social exchanges, mediums of exchange in each treatment are ultimately different (pamphlet versus dialogue). It may therefore be useful for future studies to examine how treatment effects may differ when greater aspects of the described social interactions remain constant between conditions.

Lastly, in the present study, two of the original seven vignettes were changed by adding the following information before the description: *The following video is posted on a site which lists the disclaimer that all of their videos are made by consenting adults according to fair and legal labor standards*. The original motivation for including these changes was to determine whether participants' level of comfort would be affected by this information on the production of the described video. However, rather than randomizing which participants read the text with the disclaimer, this survey unfortunately presented the disclaimer to all participants, meaning there was no useful control group against which these results could be measured. It may be interesting for future studies to correct this methodological error in order to examine how individuals respond to production disclaimers.

8 Conclusion

This study has therefore built on previous understandings of how social interactions impact pornography consumption by exploring the impacts of social pressure and information. Using survey experiment and vignette methodology, informational and social pressure-based priming was found to have no overall significant effect on participants' rating of comfort with described pornography videos. However, the treatments did, in fact, result in significant but opposite effects on men's and women's comfort. Compared to the female control group,

comfort was higher among female participants in the information group, and even higher in the social pressure group. In contrast, comfort was lower among male participants in the information group and even lower in the social pressure group. Possible explanations for these findings focus primarily on the effect of differences in men's and women's responses to guilt, and how previous interactions and expectations about pornography consumption differ by gender. This study's findings, alongside the discussion of the methodological issues that were encountered, may be useful in informing the construction and analysis of future similar work.

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10   Appendix

10.1   Study Flyer

Figure 11: Study Flyer

10.2 Copy of IRB Approval Letter

Figure 12: IRB Approval Letter

10.3 Survey Questions

Table 8: Section 1 (Demographic Information)

Number	Question	Response Type
1	Please indicate your age.	18, 19, 20, 21, 22, 23, 24 or older
2	Which race or ethnicity best describes you?	American Indian or Alaskan Native, Asian / Pacific Islander, Black or African American, Hispanic, White / Caucasian, Multiple / other

3	I identify as a religious person.	Strongly disagree, Disagree, Neither agree nor disagree, Agree, Strongly agree
4	How many years of college have you completed?	Less than one year, 1 year, 2 years, 3 years, 4 years, 5+ years
5	In what region of the United States is your college?	Northeast, Southwest, West, Southeast, Midwest,
6	How often do you consume alcohol or other mind-altering substances?	1-2 times per week, 3-4 times per week, 5-6 times per week, 7 or more times per week
7	I identify as:	Cisgender male, Transgender male, Cisgender female, Transgender female, Non-binary / other

Table 9: Section 2 (Treatment)

Group	Assigned Reading
Control	No reading was assigned.
Information	Sarah just moved into her college dorm, and is having a great time at orientation! As part of orientation, all incoming freshman have to attend a mandatory sexual health and safety seminar. At the seminar, Sarah also receives a pamphlet from a research-oriented campus club with some information about pornography. Please read the information on the pamphlet below: Pornography Fun Facts! - Over 40 million Americans are regular visitors to porn sites. - As of 2018, porn revenue was estimated to be $15 billion (conservative estimate). That same year, Netflix revenue was $11.7 billion - Worldwide in 2013, PornHub had over 14 billion hits. That averages to 1.68 million visits per hour the entire year. - Twelve percent of websites on the Internet are pornographic. - More than half of Pornhub viewers spend less than five minutes per visit. 86% spend less than 20 minutes per visit.

Social Pressure	Participants first read the information treamtent above, and additionally read the following: Sarah walks home from the seminar with her friend Jordan, and they start chatting about what they heard. Sarah: "Yeah, I don't know. I know there's nothing wrong with watching porn, but I just haven't explored it much." Jordan: "I totally get that! Honestly it's kind of hard finding videos you like sometimes. I never thought I'd enjoy porn, but I've been able to find a few sites I really like!" Sarah: "Do you ever feel bad about watching porn?" Jordan: "Maybe at first, but once I learned more about it I felt way more comfortable. And if you're interested in that kind of stuff, there are tons of sites that are really transparent about how they make their videos. Plus - it's a great way to explore your sexuality and figure out what you like!" Sarah: "That's actually really helpful! Maybe I'll try checking it out again."
Participants in both treatments group:	Rate your agreement with the following statement: After this interaction, Sarah probably feels more positively about pornography than she did before.

In the next section, participants were instructed to read each of the scenes below and report how comfortable they'd feel watching the porn scene described on a 5-point scale ranging from very uncomfortable to very comfortable.

Table 10: Section 3 (Pornography Vignettes)

Number	Description
1	Chris is a friend of Sarah's brother, Rob. One evening the three are watching TV. Rob gets up and leaves the room to take a phone call. Chris looks at Sarah, moves closer to her and leans in to kiss her. Sarah laughs and pushes him away playfully. Chris starts to rub Sarah's thigh, takes her hand and moves it towards his crotch. Sarah blushes.
2	Samantha and Dan are alone in a bedroom. They start kissing and Dan begins to run his hand up Samantha's thigh; she smiles at him and giggles. Dan whispers in her ear that he wants to touch her body. Samantha nods her head. Dan continues to open her trousers and inserts his finger into her vagina. 'That feels really good', murmurs Samantha.

3	*The following video is posted on a site which lists the disclaimer that all of their videos are made by consenting adults according to fair and legal labor standards*
	Daniel and Abby are passionately kissing in a bedroom. Abby pulls Daniel's belt, undoing the buckle and buttons, pulling his erection out of his trousers. 'Do you like that', Abby asks. 'I do', he replies. 'Do you want me to keep going, then', ask Abby. Daniel nods. She puts his penis inside her mouth and gives him oral sex.
4	Rebecca and Jack are watching a movie on the sofa. Jack begins to caress Rebecca's thigh. She smiles, leans in, and pulls him closely to her while opening her legs. Jack raises her skirt and notices that she is not wearing any underwear. Jack removes his trousers. He has an erection. Rebecca guides Jack's penis slowly inside her vagina.
5	*The following video is posted on a site which lists the disclaimer that all of their videos are made by consenting adults according to fair and legal labor standards*
	Jessica and Tom are sitting on a sofa, flirting. Jessica begins to run her hand over Tom's chest, kisses him deeply and moves her hand down further and strokes his penis, through his trousers. Tom seems hesitant, 'I'm not in the mood', but Jessica continues to kiss him and slides her hand inside his boxer shorts and pulls his penis out. Despite his protestations, Tom continues to get an erection.
6	Beth and Sandra are standing at the front door of an apartment block. Both are acting flirtatious. Beth pulls Sandra in through the door and upstairs to her bedroom. 'I've never gone this far with a girl before', says Sandra. 'Don't worry, I'll show you what to do', Beth replies. Beth kisses Sandra, widening her mouth and pushing her tongue into Sandra's mouth. 'Can we slow down for a second', says Sandra. Beth smiles, 'Trust me, I know what I'm doing'. She summons Sandra to the bed, climbs on top of her and sits on Sandra's face.

7	In this scene Max and Meghan are in the shower together, washing each other's bodies. Max reaches down, grabbing Meghan's thigh, pulling her towards him. Meghan moans, pressing her lips to his. Max, kissing her fiercely, holds both Meghan's arms behind her back. Meghan, without any determination, moans and tries to tug free. Max, then bending her forward, pushes his penis inside of her vagina, with forceful thrusts.

Table 11: Section 4 (Sexual and Social Questions)

Number	Question	Response Type
1	I identify as:	Scale from exclusively heterosexual to exclusively homosexual. "Other" option provided.
2	How many sexual partners have you had? (oral, vaginal, or anal sex)	1-2, 3-4, 5-6, 6 or more
3	In the past 6 months, how frequently have you had sexual intercourse?	Scale from never to more than four times a week.
4	At what age did you first view video pornography (for any reason, at any place, and for any length of time)?	9-11, 12-13, 14-15, 16-17, 18+, N/A
5	I have experienced sexual assault/harassment at some point in my life.	Strongly disagree, disagree, neither agree nor disagree, agree, strongly agree
6	In the past six months, have you been in a committed romantic relationship?	Yes, no, unsure
7	In the past six months, how frequently have you masturbated?	Scale from never to more than once daily
8	In the past six months, how frequently have you watched pornography?	Scale from never to more than once daily

9	I prefer to masturbate without using pornography.	Strongly disagree, disagree, neither agree nor disagree, agree, strongly agree, NA
10	In the past six months, I have spoken to someone about my (or their) sex life.	Strongly disagree, disagree, neither agree nor disagree, agree, strongly agree
11	I feel uncomfortable speaking to my friends about sex.	Strongly disagree, disagree, neither agree nor disagree, agree, strongly agree
12	I have never discussed masturbation with anyone.	Strongly disagree, disagree, neither agree nor disagree, agree, strongly agree
13	At some point in my life, I've spoken to someone about pornography	Strongly disagree, disagree, neither agree nor disagree, agree, strongly agree
14	At some point in my life, I've watched pornography with a romantic or sexual partner.	Strongly disagree, disagree, neither agree nor disagree, agree, strongly agree
15	I don't know much about how pornography is made.	Strongly disagree, disagree, neither agree nor disagree, agree, strongly agree
16	At some point, I've felt guilt or shame for watching pornography.	Strongly disagree, disagree, neither agree nor disagree, agree, strongly agree
17	If I wanted to watch pornography, I'd know of at least one website where I am likely to find a video that appeals to me.	Strongly disagree, disagree, neither agree nor disagree, agree, strongly agree
18	I know a lot about the way that pornography is produced, and the potential dangers within the pornography industry.	Strongly disagree, disagree, neither agree nor disagree, agree, strongly agree

19	I'm pretty educated about sex.	Strongly disagree, disagree, neither agree nor disagree, agree, strongly agree
20	I believe that my close friends feel that it's okay to watch pornography.	Strongly disagree, disagree, neither agree nor disagree, agree, strongly agree
21	I believe that most people in my life would feel that it's okay to watch pornography.	Strongly disagree, disagree, neither agree nor disagree, agree, strongly agree