Article

Does Pornography Misinform Consumers? The Association between Pornography Use and Porn-Congruent Sexual Health Beliefs

Dan J. Miller and Rory Stubbings-Laverty

Article

Does Pornography Misinform Consumers? The Association between Pornography Use and Porn-Congruent Sexual Health Beliefs

Dan J. Miller * and **Rory Stubbings-Laverty**

College of Healthcare Sciences, James Cook University, Townsville, OLD 4811, Australia

* Correspondence: daniel.miller1@jcu.edu.au

Abstract: Pornography may contribute to sexual health illiteracy due to its often fantastical and unrealistic depictions of sex. This cross-sectional study investigated whether pornography use was associated with holding porn-congruent sexual health beliefs among a sample of 276 Australian and Singaporean university students (M_{age} = 23.03, SD_{age} = 7.06, 67.9% female, 47.8% Australian). The majority of participants (95.5% of males and 58.9% of females) reported viewing pornography in the past six months. Perceived realism of pornography and prior sexual experience were tested as potential moderators of the relationship between pornography use frequency and sexual health beliefs. Pornography use frequency showed no zero-order association with sexual health beliefs in the overall sample (although a significant zero-order association was observed among female participants). However, a significant positive association between porn use and porn-congruent sexual health beliefs was found in the overall sample, after controlling for demographic variables. Neither perceived realism nor sexual experience were found to act as moderators. Interestingly, prior sexual experience showed a significant zero-order association with sexual health beliefs, such that prior sexual experience was associated with holding porn-congruent beliefs. Perceived realism was unrelated to porn-congruent sexual health beliefs. The study provides some preliminary support for pornography having a misinformation effect on the sexual health knowledge of consumers.

Keywords: pornography; perceived realism; media realism; beliefs; sexual health; sexual scripts

1. Introduction

The *sexual script acquisition, activation, and application model* (3AM) [1] is frequently applied in the pornography effects literature. The model highlights the sexual socialization effects of pornography that result from consumers' frequent exposure to prevalent depictions within sexual media. That is, the model predicts that frequent exposure to pornographic scripts shapes consumers' personal sexual scripts, such that their perceptions and attitudes will show greater congruence with the social world depicted in pornography (at least compared to non-consumers).

The 3AM predicts that scripting effects are especially likely among those consuming pornography specifically for information about sex [1,2]—which Wright et al. [2] refer to as "porn dependency". However, that is not to say that scripting effects would not also occur among recreational consumers of pornography (i.e., those who seek out pornography for reasons other than information about sex, such as as a masturbatory aid). Rather, scripting effects may occur as an unintended consequence of recreationally consuming pornography (in the same way that erroneous perceptions of the prevalence of violent crime may be an unintended consequence of frequent consumption of true crime documentaries). It is for this reason that Wright et al. [2] suggest treating frequency of consumption and pornography dependency as distinct variables when testing the 3AM.

It has also been suggested that scripting effects may be more likely among those who perceive pornography to be realistic in its depiction of sexuality and less likely among those

who do not [1,3–5]. This may be because media perceived as realistic is more likely to be attended to and imitated [1,3]. The notion that perceived realism of pornography moderates the effects of pornography on consumers' attitudes and behaviors is an assumption underpinning the inclusion of "porn literacy" modules in sex education curricula [6]. The current study deals primarily with frequency of consumption and perceived realism of pornography and does not consider porn dependency.

Much research has been conducted into the association between pornography use and subjective attitudes—for example, attitudes toward women [4,7] and attitudes towards casual sex [3,8]. In contrast, very little quantitative research has been conducted into the association between pornography use and sexual health knowledge [9], outside of Wright et al. [2] and Hesse and Pedersen [10] (both of which are discussed below). This is despite the fact that stark differences exist between porn sex and "real-world" sex [11]. That is, there is a sizable gap between the frequency with which some sexual behaviors are portrayed in pornography and the frequency with which these behaviors occur in real life, as indicated by nationally representative surveys. For example, condom use is portrayed less frequently in pornography relative to real life, whereas anal sex is portrayed more frequently [11].

Wright et al. [2] investigated the association between pornography use and sexual illiteracy among a sample of US adolescents. Building on the 3AM, the authors treated exposure to pornography and dependence on pornography for information about sex as independent predictors of erroneous sexual beliefs. They also investigated potential moderators of the pornography use/erroneous sexual beliefs relationship, namely, sexual experience (as it has been suggested that young people may discard erroneous understandings of sex once they have gained some real-world sexual experience [12]) and pornography dependency (as the authors reasoned that pornography dependence may act as a "contributary moderator", enhancing the effects of pornography exposure frequency, in addition to being a stand-alone predictor). Erroneous sexual beliefs were assessed via eight true/false items written to reflect recurrent, but erroneous, messages about sex featured in mainstream pornography. Example items include "penis size is very important to a man's ability to satisfy his partner" and "most women squirt lots of fluid when they have an orgasm".

The abovementioned study [2] found that both frequency of pornography use and porn dependency were predictive of holding more erroneous sexual beliefs. These positive associations remained even after adjusting for demographic variables. Further to this, exposure to "fantastical pornography" (categories of pornography known to depict situations that are rare in real-world sexual encounters, e.g., "gang bang") was found to mediate the relationship between pornography use frequency and erroneous sexual beliefs. This would suggest that pornography use is associated with sexual illiteracy due to high-volume users having an increased likelihood of exposure to fantastical sexual scripts.

Neither sexual experience nor porn dependency were found to moderate the relationship between pornography use frequency and erroneous sexual beliefs. However, previous sexual experience was found to moderate the porn dependency/erroneous sexual beliefs relationship, such that this association was positive among sexually inexperienced youths, but non-significant among sexually experienced youths. This may be seen to support the notion that gaining real-world sexual experience can mitigate the negative effects of pornography. However, the authors note that sexually experienced youths already held *more* erroneous sexual beliefs than sexually inexperienced youths in their sample. Thus, this significant moderation may simply reflect a ceiling effect among sexually experienced youths. In explaining these findings, the authors suggest that youths who are dependent on pornography may be "more likely to precociously enact scripts for sex they have seen in pornography, which then reinforces the erroneous sexual beliefs they learned from pornography in the first place" [2] (p. 345). Regarding porn dependency failing to moderate the pornography use frequency/erroneous sexual beliefs association, the authors conclude that "observation is the key component in sexual media scripting processes, rather than intentionality of observation" (p. 347).

Hesse and Pedersen [10] investigated the association between pornography exposure and knowledge of sexual anatomy and behavior among an online sample. Knowledge was assessed via a 17-item measure designed for the study. An example item is "Men usually last a long time while having sex". Participants were asked to respond on a 4-point (*strongly disagree* to *strongly agree*) format. The authors also assessed the degree to which pornography is perceived to be realistic and sexual experience (indexed by number of previous partners across various sex acts, e.g., oral sex).

In contrast to the findings of Wright et al. [2], pornography exposure showed no zero-order association with sexual knowledge and was actually associated with *more accurate* sexual knowledge after controlling for age, gender, perceived realism of pornography, and sexual experience. Perceived realism of pornography was similarly positively associated with sexual knowledge, whereas sexual experience showed no association with sexual knowledge. The authors did not statistically assess for moderation in relation to these variables.

Hesse and Pedersen [10] propose two possible explanations for the observed positive association between porn use and sexual knowledge. First, although pornography is not a completely accurate source of information about sex, it is better than nothing, and potentially better than other sources of sexual information such as school-based sex education—which tends to be overly medicalized [13]. (Indeed, many young people do identify pornography as a more informative source of information on the mechanics of sex than formal sex education [9].) In this way, consumers of pornography may still be exposed to more sexual information than non-consumers, even if they are also exposed to falsehoods in the process. Second, those with more extensive sexual knowledge may be more inclined to use pornography, perhaps as a result of a shared third variable such as erotophilia/sex positivity (i.e., sex positive individuals may tend to know more about sex and may also view pornography more frequently). Neither of these explanations are necessarily at odds with the tenets of the 3AM. The first proposed explanation does however highlight the need to carefully consider in what domains pornography may present accurate or inaccurate information about sex.

Current Study

As can be seen, the extant literature is inconsistent regarding to the association between pornography use and sexual health knowledge. The current study employed a novel measure of what we have called "porn-congruent sexual health beliefs"—that is, the degree to which one's sexual health beliefs are congruent with the social reality depicted in pornography—with the aim of expanding this nascent line of inquiry. (We use the term "sexual health beliefs" rather than "sexual health knowledge" as we do not believe that "knowledge" is an accurate label for a misperception.) This novel measure avoids the true/false or level-of-agreement formats of the measure used by Wright et al. [2] and Hesse and Pedersen [10], respectively. Instead, the measure opts for an open-response format, which we hope will better reflect the degree to which participants' perceptions mirror pornography's social reality.

The study sought to address the following research question and a priori hypotheses:

RQ1. *Is pornography use associated with sexual health misperceptions?*

Hypothesis 1 (H1). *Pornography use frequency will be positively associated with holding porn-congruent sexual health beliefs.*

Hypothesis 1 (H2). *Perceiving pornography to be realistic will be associated with holding porn-congruent sexual health beliefs.*

Given inconsistencies in the available empirical literature, these hypotheses were based on theoretical predictions of the 3AM (and the assumption that much pornography contains sexual scripts which are inaccurate and fantastical).

In line with calls to consider differential susceptibility in relation to the effects of pornography [14], the study also sought to address an additionally research question:

RQ2. *Do perceived realism of pornography and sexual experience moderate the pornography use frequency/porn-congruent sexual health beliefs relationship*?

2. Method

2.1. Design and Procedure

Data were collected from April to November 2020 via an online survey (administered using Qualtrics). The study was advertised to undergraduate students at both the Australian and Singaporean campuses of James Cook University (students participated in exchange for course credit in introductory psychology subjects). The only inclusion criteria were that participants consent to the study and be at least 18 years of age. Participants who did not meet these inclusion criteria on the screening items were thanked and exited without viewing the contents of the study. Participation in the study was completely anonymous. Course credit was assigned via an electronic system which ensured that participants could collect credits without being associated with their survey responses. Average time to complete the study was around nine minutes (based on the 5% trimmed mean for study completion time).

As part of the study debrief, participants were provided with a "factsheet" which reported basic statistics in relation to the questions asked as part of the porn-congruent sexual health beliefs measure. Participants were asked not to share this factsheet with anyone who may do the study in the future. This factsheet is provided as Supplementary Material.

2.2. Measures

2.2.1. Pornography Use Variables

Pornography was defined for participants as "Any kind of material that aims to create or enhance sexual feelings or thoughts in the audience and, at the same time (1) contains explicit exposure and/or descriptions of the genitals, and/or (2) clear and explicit sexual acts such as vaginal intercourse, anal intercourse, oral sex, masturbation etc.". This definition is a variation of the definition offered by Hald [15]. It highlights both the form and function of pornography, as recommended by Short et al. [16].

Participants were asked whether they had consumed pornography in the past six months (0 = *no*; 1 = *yes*). Those who indicated *yes* on this item where then asked "On average how often do you watch pornography, taking the last 6 months as the basis for your answer?" (where 1 = *less than monthly* and 8 = *more than once a day*). Those who indicated that they had not consumed pornography in the past six months were assigned a score of 0 on this variable.

Perceived realism of pornography was measured via Peter and Valkenburg's [8] six-item scale. An example item is "Sex in pornography is realistic". All items used a 5-point format (1 = *fully disagree* to 5 = *fully agree*) with total scores having a possible range from 6 to 30. The scale showed good internal consistency reliability (Cronbach's α = 0.86).

2.2.2. Porn-Congruent Sexual Health Beliefs

Table 1 lists the twenty-seven items that were used to gauge participants' porn-congruent sexual health beliefs. The items were chosen to represent behaviors or aesthetics common in pornography, as indicated by content analyses of mainstream pornography (see Table 1 for these content analyses). The table also gives some contextualizing information on the frequency with which these behaviors occur in the reality (drawing on full-probability surveys, where possible). Prior to the presentation of these items, participants were given the following instructions: "The following questions ask about various sexual behaviors. You may not know the answers. We are just asking for your best guess".

Table 1. Items used to assess porn-congruent sexual health beliefs along with mean (*SD*) response among the sample.

Item	Representation of Behavior in Pornography	Estimate of Real-World Prevalence	*M* (*SD*)
1. What percentage of single women have had a one-night stand in the past year?	Pornography frequently depicts casual sex/sex between near strangers [18]	36% of female America university students reported a casual sex relationship in the past year [19]	44.6% (21.46%)
2. What percentage of single men have had a one-night stand in the past year?	Pornography frequently depicts casual sex/sex between near strangers [18]	52% of male American university students reported a casual sexual relationship in the past year [19]	56.35% (22.30%)
3. What percentage of women would be ok with having sex without a condom when "hooking up" (i.e., having casual sex)?	Pornography infrequently depicts condom use [20]	57.2% of women aged 15–44 report using a condom when first having sex with someone [21]	25.03% (18.06%)
4. What percentage of men would be okay with having sex without a condom when "hooking up" (i.e., having casual sex)?	Pornography infrequently depicts condom use [20]	66.3% of men aged 15–44 report using a condom when first having sex with someone [21]	52.91% (25.03%)
5. What percentage of single women would be willing to have sex with an attractive stranger if offered?	Pornography frequently depicts casual sex/sex between near strangers [18]	A study in which attractive actors approached strangers and asked if they would want to have sex found that 0% of single women accepted the invitation [22]	44.75% (23.50%)
6. What percentage of single men would be willing to have sex with an attractive stranger if offered?	Pornography frequently depicts casual sex/sex between near strangers [18]	A study in which attractive actors approached strangers and asked if they would want to have sex found that 59% of single men accepted the invitation [22]	68.50% (22.44%)
7. How many sexual partners has the average women had?	Pornography frequently depicts casual sex/sex between near strangers [18]	For women aged 25–44, the median number of lifetime sexual partners is 4.2 [23]	6.29 (4.31)
8. How many sexual partners has the average man had?	Pornography frequently depicts casual sex/sex between near strangers [18]	For men aged 25–44, the median number of lifetime sexual partners is 6.1 [23]	9.70 (6.75)
9. What percentage of women report having an orgasm at their most recent sexual encounter?	Item not included in total score—"Orgasm gap" in which female orgasm is less frequently depicted in pornography [24]	64.4% of US women report having an orgasm at their most recent sexual event [25]	32.52% (20.20%)
10. What percentage of men report having an orgasm at their most recent sexual encounter?	Most heterosexual scenes culminate in the male performer having an orgasm [24]	91.3% of US men report having an orgasm at their most recent sexual event [25]	76.70% (21.57%)
11. How long (in minutes) does sex typically last (counting from the point at which the man penetrates the partner to ejaculation)?	Running time of clips on porn sites typically greater than 10 min [26]	Average "intravaginal ejaculation latency time" (the time from penetration of the partner to the point of ejaculation) is around 5 min (median = 5.4 min) [27]	13.93 min (11.24 min)
12. What percentage of women have had sexual contact with a member of the same sex?	Pornography aimed at a heterosexual audience frequently depicts female same-sex behavior, with "lesbian pornography" being an extremely popular genre [20]	17.4% of US women aged 18–44 report any same-sex sexual contact in their lifetime [28]	31.06% (17.94%)

Table 1. *Cont.*

	Item	Representation of Behavior in Pornography	Estimate of Real-World Prevalence	*M* (*SD*)
13.	What percentage of men have had sexual contact with a member of the same sex?	Item not included in total score—No clear evidence that pornography aimed at a heterosexual audience frequently depicts male same-sex behavior	6.2% of US men aged 18–44 report any same-sex sexual contact in their lifetime [28]	23.06% (15.20%)
14.	What percentage of women feel that a large penis is "very important" in a sexual partner?	Pornography emphasises the importance of penis size for males [29,30]	About 1% of women report that penis length is "very important" in a romantic partner [31]	44.49% (21.45%)
15.	What percentage of women totally remove their pubic hair?	The majority of female porn performers remove their pubic hair [32]	50% of female US university students reported their pubic hair status as "hair-free" [33]	55.16% (22.30%)
16.	What percentage of men totally remove their pubic hair?	Item not included in total score—Total pubic hair removal less common among male performers [32]	19% of male US university students reported their pubic hair status as "hair-free" [33]	33.96% (20.01%)
17.	What is the average erect penis length? [a]	Male performers tend to have large penises [29,30]	A meta-analysis [34] of studies into penis length reports the average erect penis length to be 13.12 cm	13.55 cm (2.88 cm)
18.	What percentage of women have had anal sex in the past year?	Pornography depicts anal sex with some frequency [17] and *anal sex* is a highly viewed category on Pornhub.com [20]	21.1% of US women aged 25–29 reported having anal sex in the past year [35]	30.17% (18.46%)
19.	What percentage of men have had anal sex in the past year?	Pornography depicts anal sex with some frequency [17] and *anal sex* is a highly viewed category on Pornhub.com [20]	26.6% of US men aged 25–29 reported having anal sex in the past year [35]	32.86% (20.48%)
20.	What percentage of women have performed oral sex in the past year?	Pornography frequently depicts female-to-male oral sex [11]	75.9% of US women aged 25–29 reported performing oral sex on a male partner in the past year [35]	65.67% (21.98%)
21.	What percentage of men have performed oral sex in the past year?	Item not included in total score—Pornography depicts male-to-female oral sex far less frequently than female-to-male oral sex [17]	73.5% of US men aged 25–29 reported performing oral sex on a female partner in the past year [35]	54.91% (23.16%)
22.	What percentage of women have had group sex (sex between three or more sexual partners) in the past year?	Pornography frequently depicts multi-partner sex. *Threesome* is a very highly viewed category on Pornhub.com [20]	0.5% of Australian women report having group sex in the past year [36]	22.00% (15.16%)
23.	What percentage of men have had group sex (sex between three or more sexual partners) in the past year?	Pornography frequently depicts multi-partner sex. *Threesome* is a very highly viewed category on Pornhub.com [20]	1.9% of Australian men report having group sex in the past year [36]	26.43% (17.63%)
24.	What percentage of women have used a sex toy (e.g., dildo, vibrator) in the past year?	Female self-stimulation is frequently depicted in pornography [37]. Presumably such behaviors would frequently be accompanied by the use of sex toys [b]	20.7% of Australian women report using a sex toy in the past year [36]	59.68% (24.75%)

Table 1. *Cont.*

	Item	Representation of Behavior in Pornography	Estimate of Real-World Prevalence	*M* (*SD*)
25.	What percentage of men have used a sex toy (e.g., dildo, vibrator) in the past year?	Item not included in total score—No clear evidence that pornography aimed at heterosexual audiences frequently depicts male sex toy use	14.5% of Australian men report using a sex toy in the past year [36]	30.28% (19.93%)
26.	What percentage of women have engaged in BDSM (Bondage, Discipline, Domination/Submission, Sadism/Masochism) in the past year?	Pornography frequently depicts BDSM-related acts such as spanking, slapping, and gagging [17,20]	1.6% of Australian women have engaged in BDSM in the past year [36]	31.36% (20.59%)
27.	What percentage of men have engaged in BDSM (Bondage, Discipline, Domination/Submission, Sadism/Masochism) in the past year?	Pornography frequently depicts BDSM-related acts such as spanking, slapping, and gagging [17,20]	2.5% of Australian women have engaged in BDSM in the past year [36]	32.78% (21.12%)

[a] Participants could elect to respond in cm or in.; [b] There is some evidence that sex toy use occurs in only around 5% of scenes [11,32]. However, both of these studies limited their samples to scenes depicting sex between a male and female performer. We suspect the use of sex toys would be significantly greater among solo female scenes and scenes depicting female same-sex behavior.

Five items (flagged in Table 1) were presented to participants but not included in the creation of the composite porn-congruent sexual health beliefs score. These items were presented to participants simply to be a gender match for an item of interest (it was reasoned that excluding these gender-match items from the survey battery might sensitize participants to the study hypotheses). For example, pornography overrepresents female-to-male oral sex, relative to the frequency with which female-to-male oral sex occurs in real-world sexual encounters [11]. Further, pornography depicts male-to-female oral sex far less frequently than female-to-male oral sex [17]. Accordingly, although participants were asked "What percentage of women have performed oral sex in the past year?" and "What percentage of men have performed oral sex in the past year?" only the first of these items was of interest (as this is the behavior that is overrepresented in mainstream pornography) and included in the calculation of the composite score. Other excluded items related to male same sex behavior, male pubic hair removal, male use of sex toys, and female orgasm.

As items were measured in different units (e.g., cm, percentages, etc.), all items were z-standardized before being averaged to create the composite porn-congruent sexual health belief score. Higher scores on this composite variable indicate sexual health beliefs which show greater congruence with the social reality depicted in pornography.

2.2.3. Sexual Experience

Sexual experience was assessed with a single item "What is your best estimate as to the number of sexual partners you have had?" The following response options were used: None; 1–3; 4–6; 7–9; 10 or more. Responses in this variable were later dichotomized (0 = *no prior sexual partners* and 1 = *1 or more prior sexual partners*) to be consistent with Wright et al.'s [2] use of a dichotomous sexual experience measure.

2.3. Participants

Qualtrics recorded 368 responses. However, 67 of these participants either did not agree to the consent item or reported being under 18 years on the screening question and were exited from the study without viewing its other contents. These participants were removed from the dataset. A further 20 participants were deleted for not responding to any

of the pornography use measures and 2 participants were removed for responding 1 to all sexual belief items (suggestive of unengaged responding). This process left a final sample of 276 participants. Demographic characteristics of the final sample are reported in Table 2. Given the small number of non-binary participants, these individuals have been excluded from any analyses using gender as a variable.

Table 2. Demographic characteristics of final sample (*N* = 276).

Variable	Summary Measure
	M (*SD*); Range
Age	23.03 (7.06); 18–65
	Frequency (Percent)
Gender	
Female	185 (67.0%)
Male	88 (31.9%)
Non-binary	3 (1.1%)
Country of residence	
Australia	132 (47.8%)
Singapore	111 (40.2%)
Other [a]	32 (11.6%)
Missing	1 (0.4%)
Sexual orientation [b]	
Heterosexual	223 (80.8%)
Gay	5 (1.8%)
Bisexual	37 (13.4%)
Other	10 (3.6%)
Missing	1 (0.4%)
Relationship status	
Not currently in a relationship	152 (55.1%)
In a relationship but not living together	68 (24.6%)
In a relationship and living together	55 (19.9%)
Missing	1 (0.4%)
Number of previous sexual partners	
0	73 (26.4%)
1–3	113 (40.9%)
4+	89 (30.2%)
Missing	1 (0.4%)

[a] Likely international students studying from home country due to COVID-19 restrictions; [b] To be consistent with Wright et al. [2], this variable was dichotomized (heterosexual, sexually diverse) in the regression analysis.

2.4. Data Cleaning and Analysis

Each porn-congruent sexual health belief item was checked for univariate outliers using the outlier labelling rule with a 2.2 multiplier [38]. No univariate outliers were observed on the majority (18/27) of the sexual health belief items. The remainder of the sexual health belief items contained between 2 and 15 outlying values. Outlying values were replaced by the next highest observed non-outlying value +1 (to maintain the rank order of the data).

H1 and **H2** were tested via zero-order correlations and hierarchical multiple regression analysis. Regarding the hierarchical multiple regression analysis, demographic variables which could be associated with both pornography use and sexual beliefs (gender, age, country, sexual diversity) were entered into Step 1 of this model. Frequency of pornography use was added at Step 2, with perceived realism and sexual experience being added at Step 3. **RQ1** was tested at Step 4, with the additional of *porn use frequency × sex experience*, *porn use frequency × perceived realism*, and *porn use frequency × gender* interaction terms (this final interaction term was added as some of the zero-order correlations were observed to differ

by gender; see below). Prior to running the regression model, Mahalanobis distances were generated to screen for multivariate outliers. Three multivariate outliers were identified (using an α of 0.001, [39]) and deleted from this analysis.

3. Results

3.1. Pornography Use

Over two-thirds of participants (70.7%) reported viewing pornography in the past six months. Males were significantly more likely than females to have viewed pornography in the past six months (95.5% of males vs. 58.9% of females), χ2 (1, N = 273) = 38.42, $p < 0.001$, ϕ = 0.38. Males also reported viewing pornography significantly more frequently (M = 4.23, SD = 1.86) than females (M = 1.57, SD = 1.70), t(271) = 11.70, $p < 0.001$, d = 1.52. Males (M = 13.35, SD = 4.78) and females (M = 13.27, SD = 4.88) did not differ with respect to perceived realism of pornography, t(271) = 0.13, p = 0.901, d = 0.02.

3.2. Research Questions

Table 1 presents mean scores for each of the porn-congruent sexual health belief items and Table 3 presents zero-order correlations between study variables. Among the overall sample, the correlation between frequency of pornography use and porn-congruent sexual health beliefs was non-significant. Non-significant relationships were also observed between pornography use frequency and perceived realism and perceived realism and porn-congruent sexual health beliefs. Sexual experience was associated with more frequent pornography use and holding porn-congruent sexual health beliefs.

Table 3. Zero-order correlations between pornography use frequency, perceived realism, sexual experience, and porn-congruent sexual health beliefs among the overall sample and broken down by gender (with females reported above the diagonal and male reported below).

	Porn Use Frequency	Perceived Realism	Sexual Experience	Sexual Beliefs
Overall sample				
Porn use frequency	-			
Perceived realism	0.04	-		
Sexual experience	0.16 **	−0.04,	-	
Sexual beliefs	0.03	0.01	0.20 ***	-
By gender				
Porn use frequency	-	0.09	0.17 *	0.17 *
Perceived realism	0.03	-	−0.12	−0.08
Sexual experience	0.24 *	0.10	-	0.19 *
Sexual beliefs	0.09	0.20	0.25 *	-

Note. All tests two-tailed; for sexual experience variable 0 = *no prior partners* and 1 = *1 or more prior partners*; females: n = 185, males: n = 88. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

As an exploratory analysis, these correlations were recalculated, splitting the sample by gender. Among female participants, more frequent pornography use was associated with holding more porn-congruent sexual health beliefs. However, this was not the case among males. Among both males and females, sexual experience was associated with greater porn use frequency and holding porn-congruent sexual health beliefs.

Table 4 presents the results of the hierarchal multiple regression analysis predicting porn-congruent sexual health beliefs. Step 1 of the model was found to explain a significant portion of the variance in porn-congruent sexual health beliefs, F(5, 260) = 6.25, $p < 0.001$, R^2 = 0.11. The addition of pornography use frequency at Step 2 was associated with a statistically significant increase in R^2, ΔF(1, 259) = 5.90, p = 0.016, indicating that pornography use frequency is able to explain variance in porn-congruent sexual health beliefs over and above the variance explained by the demographic variables included in the model (gender, age, country of residence, and sexual diversity). The direction of the relationship between

pornography use frequency and sexual health beliefs was positive, indicating that porn use is associated with more porn-congruent beliefs.

Table 4. Hierarchical multiple regression analysis predicting porn-congruent sexual health beliefs.

	B	**SE** *B*	*t*	*p*	β	Δ*R*²
Step 1						0.11 ***
Gender						
Female [a]						
Male	−0.17	0.07	−2.64	0.009	−0.34	
Age	<−0.01	<0.01	−0.15	0.878	−0.01	
Country						
Australia [a]						
Singapore	−0.26	0.06	−4.08	<0.001	−0.51	
Other	−0.38	0.10	−3.77	<0.001	−0.73	
Sexual diversity						
Heterosexual [a]						
Sexually diverse	0.03	0.08	0.41	0.680	0.06	
Step 2						0.02 *
Gender						
Female [a]						
Male	−0.29	0.08	−3.59	<0.001	−0.57	
Age	<−0.01	<0.01	−0.05	0.956	<−0.01	
Country						
Australia [a]						
Singapore	−0.26	0.06	−4.14	<0.001	−0.51	
Other	−0.35	0.10	−3.55	<0.001	−0.69	
Sexual diversity						
Heterosexual [a]						
Sexually diverse	<−0.01	0.08	−0.05	0.961	−0.01	
Porn frequency	0.09	0.04	2.43	0.016	0.18	
Step 3						0.02
Gender						
Female [a]						
Male	−0.25	0.08	−3.07	0.002	−0.49	
Age	−0.00	<0.01	−0.52	0.603	−0.03	
Country						
Australia [a]						
Singapore	−0.25	0.07	−3.74	<0.001	−0.48	
Other	−0.36	0.10	−3.54	<0.001	−0.70	
Sexual diversity						
Heterosexual [a]						
Sexually diverse	0.03	0.08	0.37	0.715	0.06	
Porn frequency	0.07	0.04	1.65	0.099	0.13	
Realism	0.01	0.01	1.34	0.182	0.08	
Sexual Experience						
0 partners [a]						
1 or more partners	0.14	0.07	1.90	0.059	0.27	
Step 4						0.01
Gender						
Female [a]						
Male	−0.23	0.09	−2.62	0.009	−0.45	
Age	<−0.01	<0.01	−0.60	0.548	−0.04	
Country						
Australia [a]						
Singapore	−0.25	0.07	−3.74	<0.001	−0.48	
Other	−0.35	0.10	−3.37	<0.001	−0.67	
Sexual diversity						
Heterosexual [a]						
Sexually diverse	0.02	0.08	0.21	0.835	0.03	
Porn frequency	0.05	0.12	0.44	0.660	0.31	
Realism	0.01	0.01	1.50	0.135	0.09	
Sexual experience						
0 partners [a]						
1 or more partners	0.11	0.08	1.41	0.159	0.21	
Porn freq. × gender	−0.04	0.08	−0.57	0.570	−0.09	
Porn freq. × realism	0.01	0.01	1.24	0.215	0.08	
Porn freq. × sexual exp.	−0.11	0.08	−1.43	0.153	−0.21	

[a] reference category; * $p < 0.05$, *** $p < 0.001$.

Adding perceived realism and sexual experience to the model at Step 3 was not associated with a significant increase in R^2, $\Delta F(2, 257) = 2.56$, $p = 0.079$, nor was the addition of the interaction terms at Step 4, $\Delta F(3, 254) = 1.35$, $p = 0.258$. Further, none of the interaction terms were found to be significant individual predictors of erroneous sexual beliefs, suggesting a lack of moderation.

4. Discussion

Public concerns exist that pornography creates false understandings and unrealistic expectations of sex [9,40]. This study sought to investigate whether pornography use is associated with sexual health misperceptions, using a novel measure of porn-congruent sexual health beliefs. The study also assessed potential moderators of the porn use/porn-congruent sexual health belief relationship, namely perceived realism of pornography and sexual experience. Regarding **H1** (that frequency of pornography use would be positively associated with porn-congruent sexual health beliefs), findings were mixed. Porn use frequency showed no zero-order association with porn-congruent sexual health beliefs among the overall sample (although a positive association was observed among female participants). However, frequency of pornography use was found to be associated with holding porn-congruent sexual health beliefs once controlling for demographic variables (gender, age, country, and sexual diversity). This finding, together with the findings of Wright et al. [2], offers some tentative support for the notion that pornography misinforms consumers regarding sexual health, potentially contributing to sexual illiteracy at the population level.

Interestingly, many porn users self-perceive pornography to have positively contributed to their sexual knowledge [41–43]. Further to this, young people frequently endorse pornography as a helpful source of information about sex. A representative survey of US young adults found that pornography was the most commonly endorsed source of helpful information about sex; rated above parents, sexual partners, friends, media, and healthcare professionals [44]. The findings of the current study do not support pornography having a positive influence on sexual health knowledge. It may be that consumers are simply not aware of their own misunderstandings of sexual health (i.e., they don't know what they don't know). Alternatively, pornography may bolster sexual knowledge in some knowledge domains (e.g., knowledge of one's own sexuality or some aspects of the mechanics of sex [9,45]) while having a detrimental influence in other knowledge domains (e.g., sexual health knowledge).

Inconsistencies around the findings of the current study and those of Wright et al. [2] and Hesse and Pedersen [10] may be partly attributable to differences in the measurement of sexual health beliefs/knowledge. For example, Wright and colleagues [2] opted for a true/false question format, while the current study employed an open response format (given that our focus was less on whether participants were right or wrong, but more on the degree to which participants' perceptions were congruent with what is depicted in pornography). That said, there is conceptual overlap between many of the questions asked in Wright et al. [2], Hesse and Pedersen [10], and the current study. For example, all studies included items relating to the average length of sexual intercourse and the importance of penis size. One interesting point of difference is around female orgasm. Wright et al. [2] included the following item addressing female orgasm: "Most women easily have orgasms during intercourse". True/False. Conversely, the current study included a question about female orgasm, but only as a gender match to an item on male orgasm. Although it may be true that pornography is unrealistic in its depiction of what kind of sexual stimulation is most likely to result in female orgasm (e.g., emphasizing vaginal intercourse over clitoral stimulation), content analyses do suggest a substantial "orgasm gap" in pornography, with female performers being substantially less likely to be depicted reaching orgasm compared to male performers [24] (hence our exclusion of this item from the calculation of porn-congruent sexual health belief scores). Independent validation of a measure of sexual

health knowledge would be an important step to enable this line of inquiry to continue. Consideration should also be given to how to reduce heteronormative bias in items.

H2 (that perceived realism of pornography would be positively association with holding porn-congruent sexual health beliefs) was not supported. Perceived realism did not correlate with porn-congruent sexual health belief scores among the overall sample, nor was it a significant predictor in the regression model. Regarding **RQ2** (Do perceived realism of pornography and sexual experience moderate the pornography exposure/porn-congruent sexual health beliefs relationship?), the study found no support for perceived realism or sexual experience moderating this relationship. As mentioned in the Introduction, many porn literacy programs are prefaced on the assumption that making consumers more cognizant of the fantastical nature of pornography will mitigate the negative effects of pornography on consumers [6]. Perceived realism's lack of moderation in the current study may be seen as evidence against. This said, other studies have found perceived realism to moderate the association between pornography use and various outcomes [3,4,46]. It should also be kept in mind that tests of moderation generally lack power relative to tests of linear effects [47], so a type II error cannot be ruled out regarding these non-significant findings.

Two additional findings are of note: (1) that porn use frequency was associated with porn-congruent sexual health beliefs among females but not males, and (2) that previous sexual experience was associated with holding more porn-congruent sexual health beliefs. It is unclear as to whether this first finding reflects a true gender difference or is merely the result of the test of this association being underpowered for males due to the relatively small subsample of male participants (sensitivity analysis indicates that an *r* of |0.29| is the smallest effect which could be detected with a power of 0.80 among 88 participants). The lack of moderation by gender in the multiple hierarchical regression analysis could be seen to support the latter. If the relationship between frequency of porn use and porn-congruent sexual health beliefs does differ between males and females, why might this be the case? Some research suggests that motivations to use pornography are similar for males and females [48], while other research indicates gender differences in motivation to use pornography [49]. Men and women do appear to consume different kinds of pornographic content, with men being more inclined to access amateur content than women and women being more inclined to view pornography depicting group sex than men [50]. It is possible that different types of pornography contain different sexual health scripts (e.g., amateur content may be more likely to depict condom use than professionally produced pornography), therefor different types of pornography may have different effects on porn-congruent sexual health beliefs. Future research should investigate gender differences in the association between pornography use frequency and porn-congruent sexual health beliefs, while accounting for type of content consumed.

Regarding the second of these findings, Wright et al. [2] report similar results. This finding may lend support to Wright et al.'s [2] argument that porn consumers enact the sexual behaviors they observe in pornography, which then reinforces erroneous beliefs around these enacted sexual behaviors. Longitudinal research comparing the sexual health beliefs of youths before and after sexual debut would be an informative test of this theory (as would a test of whether any longitudinal change is moderated by degree of porn use). Certainly, the results cut against the suggestion that youths will discard erroneous sexual beliefs once they gain real-world sexual experience. In support of this, Wright and Štulhofer [51] have demonstrated that sexual experience and perceived realism of pornography are uncorrelated over time.

Limitations

There are several study limitations worth considering when parsing these findings. First, the study did not assess porn dependency (reliance on pornography for information about sex) as a predictor of sexual health illiteracy. As mentioned in the Introduction, Wright et al. [2] found frequency of porn exposure to be a more relevant predictor than

porn dependency. Nonetheless, including porn dependency as a stand-alone predictor could have provided replicatory support for Wright and colleagues' findings. This is especially important given that many young people do report using pornography for information about sex [44]. As mentioned in the Introduction, sex positivity could act as a third variable producing a positive correlation between sexual knowledge and pornography use. Therefore, future studies may also include a measure of sex positivity.

Second, the study's sample—undergraduate students at the Australian and Singaporean campuses of one university—limits the degree to which findings can be generalized. For example, the sample may be more educated and media literate than the general population, which could result in a smaller association between pornography use and sexual health knowledge than would be observed in the general population. It should also be acknowledged that school-based sex education (and the degree to which it addresses pornography) can differ markedly between educational systems [52]. If school-based sex education does moderate the impact of pornography on perceptions, this would further limit the degree to which findings can be generalized across nations. Cross-cultural differences were not investigated in the current study due to limited power. It would be informative for future research to collect data across multiple countries/cultures to investigate the impact of culture on pornography's influence on sexual health knowledge. The sample also skewed younger than the general population. However, it could be argued that the research questions examined are most relevant to younger adults, who may be just starting to enter into sexual/romantic relationships.

5. Conclusions

Research indicates that pornography (a) is consumed frequently by large segments of the population [7,53] and (b) is fantastical, depicting certain sexual behaviors and practices far more frequently than they occur in reality [11,17,20]. Accordingly, pornography may contribute to erroneous understandings of basic sexual health information. However, very few studies have investigated pornography's potential misinformation effect. The current study found some limited support for a misinformation effect. The findings also undermine the notion that pornography-induced sexual illiteracy will "self-correct" once consumers start to engage in real-world sexual relationships. Further research into the sexual health knowledge of porn users is warranted given the mixed findings within this small literature. It is suggested that a measure of porn-congruent sexual health knowledge/beliefs be psychometrically validated to aid this developing subfield. The items given in this paper and by Wright et al. [2] and Hesse and Pedersen [10] may form the starting point for the development of such a scale.

References

1. Wright, P.J. Mass Media Effects on Youth Sexual Behavior Assessing the Claim for Causality. *Ann. Int. Commun. Assoc.* **2011**, *35*, 343–385. [CrossRef]
2. Wright, P.J.; Tokunaga, R.S.; Herbenick, D.; Paul, B. Pornography Vs. Sexual Science: The Role of Pornography Use and Dependency in Us Teenagers' Sexual Illiteracy. *Commun. Monogr.* **2022**, *89*, 332–353. [CrossRef]
3. Baams, L.; Overbeek, G.; Dubas, J.S.; Doornwaard, S.M.; Rommes, E.; Van Aken, M.A. Perceived Realism Moderates the Relation between Sexualized Media Consumption and Permissive Sexual Attitudes in Dutch Adolescents. *Arch. Sex. Behav.* **2015**, *44*, 743–754. [CrossRef] [PubMed]
4. Hald, G.M.; Malamuth, N.N.; Lange, T. Pornography and Sexist Attitudes among Heterosexuals. *J. Commun.* **2013**, *63*, 638–660. [CrossRef]
5. Krahé, B.; Tomaszewska, P.; Schuster, I. Links of Perceived Pornography Realism with Sexual Aggression Via Sexual Scripts, Sexual Behavior, and Acceptance of Sexual Coercion: A Study with German University Students. *Int. J. Environ. Res. Public Health* **2021**, *19*, 63. [CrossRef] [PubMed]
6. Dawson, K.; Nic Gabhainn, S.; MacNeela, P. Toward a Model of Porn Literacy: Core Concepts, Rationales, and Approaches. *J. Sex Res.* **2020**, *57*, 1–15. [CrossRef] [PubMed]
7. Miller, D.J.; Raggatt, P.T.F.; McBain, K. A Literature Review of Studies into the Prevalence and Frequency of Men's Pornography Use. *Am. J. Sex. Educ.* **2020**, *15*, 502–529. [CrossRef]
8. Peter, J.; Valkenburg, P.M. Processes Underlying the Effects of Adolescents' Use of Sexually Explicit Internet Material: The Role of Perceived Realism. *Commun. Res.* **2010**, *37*, 375–399. [CrossRef]
9. Litsou, K.; Byron, P.; McKee, A.; Ingham, R. Learning from Pornography: Results of a Mixed Methods Systematic Review. *Sex Educ.* **2021**, *21*, 236–252. [CrossRef]
10. Hesse, C.; Pedersen, C.L. Porn Sex Versus Real Sex: How Sexually Explicit Material Shapes Our Understanding of Sexual Anatomy, Physiology, and Behaviour. *Sex. Cult.* **2017**, *21*, 754–775. [CrossRef]
11. Fritz, N.; Malic, V.; Fu, T.-c.; Paul, B.; Zhou, Y.; Dodge, B.; Fortenberry, J.D.; Herbenick, D. Porn Sex Versus Real Sex: Sexual Behaviors Reported by a Us Probability Survey Compared to Depictions of Sex in Mainstream Internet-Based Male–Female Pornography. *Arch. Sex. Behav.* **2022**, *51*, 1187–1200. [CrossRef]
12. Peter, J.; Valkenburg, P.M. Adolescents' Exposure to Sexually Explicit Internet Material and Sexual Satisfaction: A Longitudinal Study. *Hum. Commun. Res.* **2009**, *35*, 171–194. [CrossRef]
13. Pound, P.; Langford, R.; Campbell, R. What Do Young People Think About Their School-Based Sex and Relationship Education? A Qualitative Synthesis of Young People's Views and Experiences. *BMJ Open* **2016**, *6*, e011329. [CrossRef]
14. Peter, J.; Valkenburg, P.M. Adolescents and Pornography: A Review of 20 Years of Research. *J. Sex Res.* **2016**, *53*, 509–531. [CrossRef]
15. Hald, G.M. Gender Differences in Pornography Consumption among Young Heterosexual Danish Adults. *Arch. Sex. Behav.* **2006**, *35*, 577–585. [CrossRef]
16. Short, M.B.; Black, L.; Smith, A.H.; Wetterneck, C.T.; Wells, D.E. A Review of Internet Pornography Use Research: Methodology and Content from the Past 10 Years. *Cyberpsychology Beh. Soc. Netw.* **2012**, *15*, 13–23. [CrossRef] [PubMed]
17. Carrotte, E.R.; Davis, A.C.; Lim, M.S. Sexual Behaviors and Violence in Pornography: Systematic Review and Narrative Synthesis of Video Content Analyses. *J. Med. Internet Res.* **2020**, *22*, e16702. [CrossRef] [PubMed]
18. Rasmussen, K.R.; Millar, D.; Trenchuk, J. Relationships and Infidelity in Pornography: An Analysis of Pornography Streaming Websites. *Sex. Cult.* **2019**, *23*, 571–584. [CrossRef]
19. Grello, C.M.; Welsh, D.P.; Harper, M.S. No Strings Attached: The Nature of Casual Sex in College Students. *J. Sex Res.* **2006**, *43*, 255–267. [CrossRef] [PubMed]
20. Miller, D.J.; McBain, K.A. The Content of Contemporary, Mainstream Pornography: A Literature Review of Content Analytic Studies. *Am. J. Sex. Educ.* **2022**, *17*, 219–256. [CrossRef]
21. National Center for Health Statistics. Key Statistics from the National Survey of Family Growth—C Listing. 2019. Available online: https://www.cdc.gov/nchs/nsfg/key_statistics/c.htm (accessed on 20 May 2020).
22. Hald, G.M.; Høgh-Olesen, H. Receptivity to Sexual Invitations from Strangers of the Opposite Gender. *Evol. Hum. Behav.* **2010**, *31*, 453–458. [CrossRef]
23. National Center for Health Statistics. Key Statistics from the National Survey of Family Growth—N Listing. 2017. Available online: https://www.cdc.gov/nchs/nsfg/key_statistics/n.htm (accessed on 20 May 2020).
24. Séguin, L.J.; Rodrigue, C.; Lavigne, J. Consuming Ecstasy: Representations of Male and Female Orgasm in Mainstream Pornography. *J. Sex Res.* **2018**, *55*, 348–356. [CrossRef] [PubMed]
25. Herbenick, D.; Reece, M.; Schick, V.; Sanders, S.A.; Dodge, B.; Fortenberry, J.D. An Event-Level Analysis of the Sexual Characteristics and Composition among Adults Ages 18 to 59: Results from a National Probability Sample in the United States. *J. Sex. Med.* **2010**, *7*, 346–361. [CrossRef] [PubMed]
26. Miller, D.J. Pornography's Influence on Men's Sexual Relationships and Attitudes toward Women. Ph.D. Thesis, James Cook University, Townsville, Australia, 2019. [CrossRef]
27. Waldinger, M.; Quinn, P.; Dilleen, M.; Mundayat, R.; Boolell, M.; Schweitzer, D. A Multi-National Population Survey of Intravaginal Ejaculation Latency Time. *J. Sex. Med.* **2005**, *2*, 492–497. [CrossRef]

28. Copen, C.E.; Chandra, A.; Febo-Vazquez, I. Sexual Behavior, Sexual Attraction, and Sexual Orientation among Adults Aged 18–44 in the United States: Results from the 2011–2013 National Survey of Family Growth. National Health Statistics Reports, 88. 2016. Available online: https://www.cdc.gov/nchs/data/nhsr/nhsr088.pdf (accessed on 20 May 2020).

29. Brennan, J. Size Matters: Penis Size and Sexual Position in Gay Porn Profiles. *J. Homosex.* **2018**, *65*, 912–933. [CrossRef]

30. McKee, A.; Albury, K.; Lumby, C. *The Porn Report*; Melbourne University Press: Melbourne, Australia, 2008.

31. Francken, A.; Van de Wiel, H.; Van Driel, M.; Schultz, W.W. What Importance Do Women Attribute to the Size of the Penis? *Eur. Urol.* **2002**, *42*, 426–431. [CrossRef] [PubMed]

32. Vannier, S.A.; Currie, A.B.; O'Sullivan, L.F. Schoolgirls and Soccer Moms: A Content Analysis of Free "Teen" and "Milf" Online Pornography. *J. Sex Res.* **2014**, *51*, 253–264. [CrossRef] [PubMed]

33. Butler, S.M.; Smith, N.K.; Collazo, E.; Caltabiano, L.; Herbenick, D. Pubic Hair Preferences, Reasons for Removal, and Associated Genital Symptoms: Comparisons between Men and Women. *J. Sex. Med.* **2015**, *12*, 48–58. [CrossRef]

34. Veale, D.; Miles, S.; Bramley, S.; Muir, G.; Hodsoll, J. Am I Normal? A Systematic Review and Construction of Nomograms for Flaccid and Erect Penis Length and Circumference in up to 15 521 Men. *BJU Int.* **2015**, *115*, 978–986. [CrossRef] [PubMed]

35. Herbenick, D.; Reece, M.; Schick, V.; Sanders, S.A.; Dodge, B.; Fortenberry, J.D. Sexual Behavior in the United States: Results from a National Probability Sample of Men and Women Ages 14–94. *J. Sex. Med.* **2010**, *7*, 255–265. [CrossRef]

36. Richters, J.; De Visser, R.O.; Badcock, P.B.; Smith, A.M.; Rissel, C.; Simpson, J.M.; Grulich, A.E. Masturbation, Paying for Sex, and Other Sexual Activities: The Second Australian Study of Health and Relationships. *Sex. Health* **2014**, *11*, 461–471. [CrossRef] [PubMed]

37. Zhou, Y.; Paul, B.; Malic, V.; Yu, J. Sexual Behavior Patterns in Online Sexually Explicit Materials: A Network Analysis. *Qual. Quant.* **2019**, *53*, 2253–2271. [CrossRef]

38. Hoaglin, D.C.; Iglewicz, B. Fine-Tuning Some Resistant Rules for Outlier Labeling. *J. Am. Stat. Assoc.* **1987**, *82*, 1147–1149. [CrossRef]

39. Tabachnick, B.G.; Fidell, L.S. *Using Multivariate Statistics*, 6th ed.; Pearson: London, UK, 2013.

40. Noll, L.K.; Harsey, S.J.; Freyd, J.J. Assessment of Attitudes toward Internet Pornography in Emerging Adults Using the Internet Pornography Questionnaire. *Comput. Human Behav.* **2022**, *131*, 107231. [CrossRef]

41. Hald, G.M.; Malamuth, N.M. Self-Perceived Effects of Pornography Consumption. *Arch. Sex. Behav.* **2008**, *37*, 614–625. [CrossRef]

42. Hald, G.M.; Træen, B.; Noor, S.W.; Iantaffi, A.; Galos, D.; Rosser, B.S. Does Sexually Explicit Media (Sem) Affect Me? Assessing First-Person Effects of Sem Consumption among Norwegian Men Who Have Sex with Men. *Psychol. Sex.* **2015**, *6*, 59–74. [CrossRef]

43. Miller, D.J.; Hald, G.M.; Kidd, G. Self-Perceived Effects of Pornography Consumption among Heterosexual Men. *Psychol. Men Masc.* **2018**, *19*, 469–476. [CrossRef]

44. Rothman, E.F.; Beckmeyer, J.J.; Herbenick, D.; Fu, T.-C.; Dodge, B.; Fortenberry, J.D. The Prevalence of Using Pornography for Information About How to Have Sex: Findings from a Nationally Representative Survey of Us Adolescents and Young Adults. *Arch. Sex. Behav.* **2021**, *50*, 629–646. [CrossRef] [PubMed]

45. McCormack, M.; Wignall, L. Enjoyment, Exploration and Education: Understanding the Consumption of Pornography among Young Men with Non-Exclusive Sexual Orientations. *Sociology* **2017**, *51*, 975–991. [CrossRef] [PubMed]

46. Wright, P.J.; Herbenick, D.; Paul, B. Casual Condomless Sex, Range of Pornography Exposure, and Perceived Pornography Realism. *Commun. Res.* **2021**, 00936502211003765. [CrossRef]

47. Perugini, M.; Gallucci, M.; Costantini, G. A Practical Primer to Power Analysis for Simple Experimental Designs. *Int. Rev. Soc. Psychol.* **2018**, *31*, 20. [CrossRef]

48. Esplin, C.R.; Hatch, S.G.; Hatch, H.D.; Deichman, C.L.; Braithwaite, S.R. What Motives Drive Pornography Use? *Fam. J.* **2021**, *29*, 161–174. [CrossRef]

49. Sánchez-Lamadrid, N.; Sánchez-Fuentes, M.d.M.; Moyano, N.; Granados, R. Sexually Explicit Material and Its Relationship with Sociodemographic Variables, Sexual Satisfaction, and Relationship Satisfaction in a Spanish Sample. *Int. J. Environ. Res. Public Health* **2022**, *19*, 14131. [CrossRef] [PubMed]

50. Hald, G.M.; Štulhofer, A. What Types of Pornography Do People Use and Do They Cluster? Assessing Types and Categories of Pornography Consumption in a Large-Scale Online Sample. *J. Sex Res.* **2016**, *53*, 849–859. [CrossRef]

51. Wright, P.J.; Štulhofer, A. Adolescent Pornography Use and the Dynamics of Perceived Pornography Realism: Does Seeing More Make It More Realistic? *Comput. Human Behav.* **2019**, *95*, 37–47. [CrossRef]

52. Crabbe, M.; Flood, M. School-Based Education to Address Pornography's Influence on Young People: A Proposed Practice Framework. *Am. J. Sex. Educ.* **2021**, *16*, 1–37. [CrossRef]

53. Regnerus, M.; Gordon, D.; Price, J. Documenting Pornography Use in America: A Comparative Analysis of Methodological Approaches. *J. Sex Res.* **2016**, *53*, 873–881. [CrossRef]

54. Richters, J.; De Visser, R.O.; Rissel, C.E.; Grulich, A.E.; Smith, A.M. Demographic and psychosocial features of participants in bondage and discipline, "sadomasochism" or dominance and submission (BDSM): Data from a national survey. *J. Sex. Med.* **2018**, *5*, 1660–1668. [CrossRef]

55. Rissel, C.; Badcock, P.B.; Smith, A.M.; Richters, J.; de Visser, R.O.; Grulich, A.E.; Simpson, J.M. Heterosexual experience and recent heterosexual encounters among Australian adults: The Second Australian Study of Health and Relationships. *Sex. Health* **2014**, *11*, 416–426. [CrossRef]