Published in final edited form as:

Int J Sex Health. 2015 ; 27(3): 316–323. doi:10.1080/19317611.2014.999967.

Internet Pornography Use and Sexual Body Image in a Dutch Sample

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Abstract

Objectives—A commonly attributed cause of sexual body image dissatisfaction is pornography use. This relationship has received little verification.

Methods—The relationship between sexual body image dissatisfaction and Internet pornography use was tested using a large-N sample of Dutch respondents.

Results/Conclusion—Penis size dissatisfaction is associated with pornography use. The relationship between pornography use and breast size dissatisfaction is null. These results support prior speculation and self-reports about the relationship between pornography use and sexual body image among men. These results also support a prior null finding of the relationship between breast size satisfaction for women and pornography use.

Keywords

Body Image; Erotica; Genital Image

Introduction

There is a large literature on the influence of different types of media exposure on body image. While much of the research on this subject has focused on conventional media, there has been some limited research on the specific effects of erotic media on perceptions of intimate partners or pictures of normal-looking nude women (Kenrick, Gutierrez, & Goldberg 1989; Weaver, Masland, & Zillman 1984; Zillmann & Bryant 1988), generally concluding that pornography decreases satisfaction with the bodies being considered.

While the media/body image literature has been approached through various theoretical frameworks (for a review, see Levine & Harrison [2009]), sociocultural comparison theory is the perspective most often used, as it operates on the key mechanisms involved in the relationship between body image and media exposure (Myers & Crowther, 2009). Sociocultural theories posit that dissatisfaction with one's body can be caused by ideals constructed by society and disseminated via various media (Levine & Chapman, 2011). This theoretical reasoning is especially relevant to the influence of pornography on “sexual body image,” or perceptions of sex-related body parts such as penises, breasts, and vulvae, body parts often emphasized in pornographic depictions.

However, research specifically considering penis and breast size dissatisfaction is still in its early stages (Wideman, 2011), and only one study has directly tested the relationship between an individual's own sexual body image and pornography use, despite the plausibility that exposure to pornographic material may particularly affect perceptions of sex-related body parts. Specifically, Peter & Valkenburg (2014) use a single lag autoregression to test the relationship between pornography use and various forms of body dissatisfaction within individuals in the Netherlands. While they find relationships between other forms of body dissatisfaction, their results for breast and penis size were null. However, as will be discussed more later, the fact that the lag used was only six months limits this study's ability to argue for a null relationship.

Some people who have concerns about the size of their sex-related body part(s) may qualify for body dysmorphic disorder (for a discussion of penis-related dysmorphia, see Veale et al., 2013). In general, sexual body image has been shown to be associated with a variety of sexual outcomes. These early reports find that female genital appearance satisfaction (Berman, Berman, Miles, Pollets, & Powell, 2003; Morrison, 2005), breast size satisfaction (Ålgars et al., 2011; Stofman, Neavin, Ramineni, & Alford, 2006), and penis size satisfaction (Ålgars et al., 2011; Davis, Paterson, & Binik, 2012; Lever, Frederick, & Peplau, 2006; Morrison, 2005; Wylie & Eardley, 2007) are positively associated with sexual outcomes such as sexual confidence, satisfaction, and frequency. In their construction of a beliefs about penis size scale, Veale et al., (2013) find that belief that one has a small penis is associated with a scale about overall shame about penis size that includes a number of factors such as feeling self conscious in sexual situations, being embarrassed to be naked in front of men or women, believing that they will not be able to have children, or simply feeling abnormal. Consequently, sexual body image is a plausible mediator in relationships that may exist between pornography use and sexual outcomes.

The sexual body image/pornography connection is also directly discussed in related urology and plastic surgery literature on men seeking penis enlargement procedures and women seeking cosmetic surgery. Specifically, it is often speculated that exposure to pornography is a central behavioral cause for believing that one has a small penis (Davis et al., 2012; Ghanem et al., 2007; Lever et al., 2006; Liao & Creighton, 2007; Mondaini et al., 2002; Shamloul, 2005; Söylemez et al., 2012; Wylie & Eardley, 2007). However, there are few studies that empirically support this claim, and the ones that do rely on self-reported causal attribution. One is Mondaini et al's (2002) report that of the 67 patients that saw them specifically about their small penis size, 25 reported that their dissatisfaction started after seeing erotic images (none of the patients actually had significantly small penises, and Mondaini et al. [2002] attributed the patients' concerns to misperceptions about average penis size). Similarly, 38 men (41%) in Shamloul's (2005, 1184) sample and 90 men (36%) in Ghanem et al's sample (2007) of men who were concerned about their penis size made an explicit connection between the onset of their concerns about penis size and their adolescent pornography use. Finally, there exist some anecdotal reports that women requesting cosmetic genitoplasty or breast enlargement will often bring pornographic pictures of breasts and/or vulvae to their cosmetic surgeons to illustrate their desired appearance (Braun, 2005; Gagne & Mcgaughey, 2002; Liao & Creighton, 2007). These reports preliminarily suggest an influence of pornographic images on sexual body image.

Material and Methods

The dataset used was the Longitudinal Internet Studies for the Social Sciences (LISS) panel survey, an Internet-based survey of Dutch households that draws respondents from the Statistics Netherlands population register. The same survey that Peter & Valkenburg (2014) used, the LISS is ideal for this kind of study, as Internet surveys are more accurate for reporting sensitive information than most other methods (Kreuter, Presser, & Tourangeau, 2009), and, unlike most Internet surveys, the LISS survey does not have a response bias incurred by only sampling those with pre-existing Internet access. Once selected, the respondents were periodically offered compensation to complete surveys on various topics. The particular study used was the *Sexuality and Media Use* survey that was conducted during September 2009. Six months later, a follow-up wave of surveys was conducted. The first wave used consisted of 1,005 males and 1,188 females. For experimental purposes, the sample was divided into two groups, one that was asked the pornography questions in both waves, and one that was only asked the pornography questions in the second wave (Peter & Valkenburg, 2012). Therefore, while the second wave survey had a higher N, the sample was divided among those who were exposed to different combinations of treatments regarding wording and questions. Because the treatments involved are not germane to this study, to simplify this study the analysis was conducted using Wave I, in which everybody who was asked a question about sexuality was asked the same question and in the same question order.

Prior research has defined “pornography” in a variety of ways (for a brief review, see Hald, Seaman, & Linz, 2014). The concept is notoriously difficult to define and operationalize, but definitions generally include an intent to sexually arouse. Internet pornography use was measured with two questions that ask how often in the past two months respondents “have intentionally viewed films showing people having sex” and “have intentionally viewed films showing naked genitals.” The survey explicitly introduced the questions by stating, “now follows a question about sex on the Internet. Some people refer to this as ‘Internet pornography’ or just ‘porn’. This concerns photographs or films that clearly show people having sex with each other, or photographs or films that clearly show the male and/or female genitals. When referring to sex on the Internet, this does not mean that it requires being online. It can also refer to films or photos that you downloaded or that were sent to you by Internet.” This introduction clearly primed the respondents to report their pornography consumption specifically, but not necessarily films they had seen that incidentally included genitalia or sexual acts. Internet pornography use was emphasized because with the rise of high-speed Internet, the Internet has become the predominant source of pornography (Owens et al., 2012), with other sources of pornographic material such as adult movie theaters becoming less significant.

The sexual body image variables were modified derivatives of the body dissatisfaction subscale of Garner, Olmstead, & Polivy's (1983) often used and well-validated Eating Disorder Inventory (Peter & Valkenburg, 2014). They were measured by a Likert item response to the statement: “My penis is too small” and “my breasts are too small.” Distributionally, there is a general tendency for men to be satisfied with their penis size

(Table 1), a characteristic of other surveys on male attitude towards their penis size (Lever et al., 2006).

The breast size question was similarly distributed (Table 2). Performing a Brant test on an ordered logistic version of Table 3 indicated that the data did not meet the proportional odds assumption required by an ordered logistic analysis. Consequently, a logistic analysis was used, with a dichotomous variable indicating whether the respondent did not disagree with the statement (i.e. they did not mark “disagree entirely” or “disagree.”) However, the results were not substantively altered when the full measure was retained and an ordered logistic or OLS regression was used. To make the results more interpretable, odds ratios are used in reporting results.

The intentional viewing of sex on the Internet had a similar distribution, with relatively few males, and even fewer females, indicating pornography use in the recent past (Tables 1 & 2). Respective distributions of the intentional viewing of genitals on the Internet were similar. For each of these questions some respondents indicated that they would rather not answer the question (129 for the size satisfaction question and 20 for the viewing of sex on the Internet question for males, and 76 and 13 for females, respectively); missing data were handled through listwise deletion.

In Models 1 and 2 (Table 3) the intentional viewing of sex on the Internet was used as the measure of pornography use, and in Models 3 and 4 the intentional viewing of genitals on the Internet was used in order to show that the findings are more robust than an alternative measure. It was not apparent which covariates would be associated with both penis size dissatisfaction and pornography use, so simple controls for age and partnered status (besides gender the only demographic variable available in the survey used) were used in Models 2 and 4. A control for time spent on the Internet was also included. As can be seen, none of these covariates significantly affected the strength of the relationship, nor were they significantly related to the variables of interest.

Results

The results for females are all null, not even significant to the .1 level (tables available upon request). However, the crosstabs seem to suggest that there may be a relationship, as the Pearson χ^2 for the sex films and genital films are .062 and .076, respectively. One possible reason for the null effect is a simple lack of power. The population of women who view pornography is relatively small, making power a plausible concern, even though the total sample size is large-N. Specifically, only 152 women (about 13%) reported that they viewed any pornography at all, potentially making statistical relationships between users and non-users difficult to establish.

However, when this possibility is tested in a slightly different analysis by splitting the female group into two (pornography abstainers and those who indicated some pornography use), and performing a simple sample size and power test using Stata's *power twomeans* command, an effect should be detected (power .8) if the female pornography user's real average is either below 1.9 or above 2.3 (using increments of .1). The non pornography-

using group's average is 2.122, suggesting that substantively significant differences in the real values of the two groups should be detected in a simple t-test, which they are not as the results are once again null. Consequently, although prior theory would suggest that there is a relationship, and the χ^2 s perhaps tentatively suggest as much, ultimately this analysis fails to reject the null hypothesis for the relationship between breast size dissatisfaction and pornography use.

The results for the men are much clearer. Table 3 indicates that dissatisfaction with penis size appears to be strongly related both substantively and significantly to Internet pornography use, supporting the connection hypothesized in the prior literature. Specifically, the odds ratios for not “strongly disagreeing” or “disagreeing” with a statement that one's penis is too small varies from 1.152-1.167, depending on the measure and covariates used. The covariates are insignificantly related to the variables of interest and do not significantly affect the coefficients.

Discussion

As previously noted, Peter & Valkenburg (2014) found no relationship for either penis size or breast size dissatisfaction in their longitudinal analysis of the same data used in this study. On one hand, the lack of a relationship for breast size and pornography use in the less restrictive, cross-sectional analysis provides supporting confirmation of the lack of any kind of relationship between pornography use and breast size dissatisfaction (however, Peter & Valkenburg [2014, 301] did find a positive result in the zero-order correlations they conducted on the second wave respondents, suggesting that the null findings here may not definitively settle the matter). However, the strong and substantively large association between penis size dissatisfaction and pornography use in the cross-section challenges Peter & Valkenburg's (2014) null result, while supporting the plausible theoretical speculation and the limited evidence in the urology literature.

Given the characteristics of the data, the use of a single-lag, six-month longitudinal design to measure variations across time is overly conservative, with a very high risk of a type II error, while a cross-sectional design may be more appropriate. An implicit methodological assumption in a design that uses a single lag is that the variable of interest varies enough across the lag (here, six months time) to provide meaningful variation within an individual across time. Peter & Valkenburg (2014) do not provide any formal test for whether people change their penis size dissatisfaction or pornography watching habits enough over the course of six months for a substantively large relationship to be detected. If there is a lot of variation across people but not across time, then it is likely that a cross-sectional approach would appropriately pick up relationships that were missed in a time-series design, and that the main story is found in variables that explain the between-person effects.

In these data the between-individual effect is predominant. Specifically, when penis size dissatisfaction across both waves was regressed using person-fixed effects, the total R^2 is .82 (analysis available upon request). In other words, knowing the individual predicts 82% of the variation in penis size dissatisfaction between the two data points (for females and breast size dissatisfaction, the number is even higher at 86%). Since the within-person effect is one

minus the between-person variation, the relevant dynamics seem to be operating at the cross-section. Consequently, the strong, large relationship detected in a cross sectional analysis when there is not one across a six month longitudinal panel is not unexpected. Ultimately, these cross-sectional results support the pattern previously found only in the limited, self-report based studies, that exposure to pornography is associated with higher penis size dissatisfaction.

There are a variety of theoretically plausible reasons why there would be a relationship between exposure to pornography and penis size dissatisfaction for men, but not an analogous relationship for breast size and women. Women are exposed to each others' breasts in various settings, and therefore could be more likely to make objectively accurate comparisons between their breast size and the population average (additionally, women have an objective, quantitative indicator in bra size), whereas outside of pornography non-gay men generally do not have much occasion to see erect penises other than their own. Consequently, for a significant portion of the male population, perceptions about adequate erected penis size may be wholly based on the non-representative portrayals in pornography. Additionally, for women breast shape may be a more significant concern than size alone.

Conclusion

These results supplement the empirical findings of Peter & Valkenburg (2014), Shamloul (2005), Ghanem et al., (2007), and Mondaini et al. (2002), as well as the intuitive speculation offered by the prior literature. First, the cross-sectional results are less restrictive, and therefore provide more powerful evidence of the lack of a relationship between pornography use and breast size dissatisfaction. Second, they provide empirical evidence of the theorized association between penis size dissatisfaction and pornography use that previously had only been detected via self-reports, even though support is lacking when the data are approached longitudinally. Given the aforementioned interrelations with penis size dissatisfaction and various emotional, sexual, and mental health outcomes, as well as the volume of pornographic material produced, disseminated, and viewed, this relationship could be substantively significant.

However, while prior theoretical speculation has assumed the causal direction of pornography leading to dissatisfaction with penis size, there are a number of alternative reasons for this relationship: people with more sexual confidence could be less likely to use Internet pornography, or people more preoccupied with their sexual body parts could be more drawn towards Internet pornography use. A scenario where causality predominantly goes the other way would also comport with these findings.

Another possible explanation is that pornography use affects sexual confidence more generally, and that sexual body image is one factor in an interconnected nexus of sexual confidence variables. While there has been much popular speculation and anecdotal evidence linking pornography use to erectile dysfunction, lack of sexual confidence, and other sexual performance problems (Ley, 2013), the academic literature is still very scant. Without more comprehensive data, any speculations about causality, or the interrelationship between penis size dissatisfaction, general lack of sexual confidence, and pornography use

are still preliminary. Indeed, the lack of longitudinal, large-N datasets with data on pornography use severely limits the literature. However, research employing experimental methods could perhaps provide more definitive evidence for causality and help address the problem of potentially confounding, unobserved variables associated with pornography use. Closely exploring interrelations and directions of causality between pornography use and sexual body image is a potentially fruitful area for future research.

Acknowledgments

This research received support from the Population Research Training Grant (NIH T32 HD007242) awarded to the Population Studies Center at the University of Pennsylvania by the National Institutes of Health's (NIH)'s Eunice Kennedy Shriver National Institute of Child Health and Human Development.

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Table 1
Male cross tabulation (“My penis is too small” × sex viewing on Internet)

	Disagree entirely	Disagree	Partly agree/disagree	Agree	Agree entirely	Total
Never	114 (22.85%)	270 (54.11%)	86 (17.23%)	24 (4.81%)	5 (1%)	499 (100%)
<1/month	32 (19.75%)	84 (51.85%)	34 (20.99%)	9 (5.56%)	3 (1.85%)	162 (100%)
1-3/month	20 (13.99%)	71 (49.65%)	36 (25.17%)	15 (10.49%)	1 (0.7%)	143 (100%)
1/wk	14 (16.67%)	46 (54.76%)	17 (20.24%)	7 (8.33%)	0 (0%)	84 (100%)
Several/week	20 (20.2%)	46 (46.46%)	19 (19.19%)	14 (14.14%)	0 (0%)	99 (100%)
Every day	4 (30.77%)	4 (30.77%)	1 (7.69%)	4 (30.77%)	0 (0%)	13 (100%)
Several/day	1 (20%)	1 (20%)	1 (20%)	1 (20%)	1 (20%)	5 (100%)
Total	205 (20.40%)	522 (51.94%)	194 (19.30%)	74 (7.36%)	10 (1%)	1005 (100%)
Observations	1005					

Table 2
Female cross tabulation “My breasts are too small” × sex viewing on Internet

	Disagree entirely	Disagree	Partly agree/disagree	Agree	Agree entirely	Total
Never	267 (25.77%)	523 (50.48%)	112 (10.81%)	95 (9%)	39 (3.76%)	1036 (100%)
<1/month	31 (29.25%)	50 (47.17%)	8 (7.55%)	12 (11%)	5 (4.72%)	106 (100%)
1-3/month	8 (21.05%)	20 (52.63%)	6 (15.79%)	2 (5%)	2 (5.26%)	38 (100%)
1/wk	4 (66.67%)	2 (33.33%)	0 (0%)	0 (0%)	0 (0%)	6 (100%)
Several/week	0 (0%)	0 (0%)	1 (50%)	0 (0%)	1 (50%)	2 (100%)
Total	310 (26.09%)	595 (50.08%)	127 (10.69%)	109 (9.18%)	47 (4%)	1188 (100%)
Observations	1188					

Table 3
Penis size dissatisfaction (odds ratios)

	(1)	(2)	(3)	(4)
Sex on the Internet	1.162** (3.22)	1.152** (2.90)		
Genitals on the Internet			1.167*** (3.31)	1.156** (2.99)
Age		1.001 (0.22)		1.001 (0.12)
Partnered		0.951 (-0.29)		0.955 (-0.26)
Days/week use Internet		1.037 (0.79)		1.036 (0.79)
Observations	1005	1005	1005	1005
<i>BIC</i>	1189.0	1209.0	1188.4	1208.5
χ^2	10.23	10.93	10.74	11.43
Log-likelihood	-587.6	-587.2	-587.3	-587.0

Exponentiated coefficients; *t* statistics in parentheses

⁺ $p < .10$,

^{*} $p < .05$,

^{**} $p < .01$,

^{***} $p < .001$