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Pornography's Influence on Men's Sexual Relationships and Attitudes Toward Women

Thesis submitted by

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in August 2019

for the degree of Doctor of Philosophy

in the Department of Psychology, College of Healthcare Sciences,

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## Acknowledgements

The submission of a thesis, being the culmination of one's career as a student, seems an appropriate time to offer thanks. So that is exactly what I will do. First and foremost, I wish to thank my advisors: Dr Peter Raggatt (whom I started this process with and who encouraged me to study whatever I thought was interesting); Dr Kerry McBain (who deftly took over the reins upon Dr Raggatt's retirement); Assoc. Prof. Garry Kidd (who has always been an enthusiastic sounding-board for ideas); and Assoc. Prof. Wendy Li (who gave me my first gig in academia). My thanks go also to Assoc. Prof. Gert Martin Hald (who was exceptionally kind and encouraging to a stranger on the other side of the planet); the anonymous reviewers of my work (who have given me so much valuable feedback); my student colleagues, especially Hollie (my compatriot in sessional teaching); my parents, Sue and Rohan (who fostered my interest in science); and my partner, Tia (who tolerated this postgraduate's pauper status for many years). Finally, thanks to all those who kindly participated in this research.

### Statement of the Contribution of Others

This research was carried out under the supervision of the following James Cook University academics: Dr Peter Raggatt (Primary Advisor, later Secondary Advisor following retirement), Dr Kerry McBain (Primary Advisor), Assoc. Prof. Garry Kidd (Secondary Advisor), and Assoc. Prof. Wendy Li (Secondary Advisor). The advisory panel offered intellectual and editorial support throughout my candidature. Assoc. Prof. Gert Martin Hald, University of Copenhagen, also provided editorial and statistical support on Chapters 6 and 7. Several chapters have been published as journal articles. The exact nature of the support provided for these publications is summarised below.

Chapter	Publication	Nature of Contribution
6	Miller, D. J., Kidd, G., & Hald, G. M. (2019). Measuring self- perceived effects of pornography: A short- form version of the Pornography Consumption Effects Scale. <i>Archives of Sexual Behavior</i> , 48, 753–761. <a href="https://doi.org/10.1007/s10508-018-1327-z">https://doi.org/10.1007/s10508-018-1327-z</a>	<b>Kidd and Hald</b> provided statistical advice and editorial assistance
7	Miller, D. J., Hald, G. M., & Kidd, G. (2018). Self-perceived effects of pornography consumption among heterosexual men. <i>Psychology of Men &amp; Masculinity</i> , 19, 469–476. <a href="https://doi.org/10.1037/men0000112">https://doi.org/10.1037/men0000112</a>	<b>Hald and Kidd</b> provided statistical advice and editorial assistance
9	Miller, D. J., McBain, K. A., Li, W. W., & Raggatt, P. T. F. (2019). Pornography, desire for porn-like sex, masturbation, and men’s sexual and relationship satisfaction. <i>Personal Relationships</i> , 26, 93–113. <a href="https://doi.org/10.1111/pere.12267">https://doi.org/10.1111/pere.12267</a>	<b>McBain and Raggatt</b> aided with study design. <b>McBain, Li, and Raggatt</b> provided editorial assistance
11	Miller, D. J., McBain, K. A., & Raggatt, P. T. F. (2018). An experimental investigation into pornography’s effect on men’s perceptions of the likelihood of women engaging in porn-like sex. <i>Psychology of Popular Media Culture</i> . Advance online publication. <a href="http://dx.doi.org/10.1037/ppm0000202">http://dx.doi.org/10.1037/ppm0000202</a>	<b>McBain and Raggatt</b> provided editorial assistance. <b>Raggatt</b> aided with study design

For part of my candidature I was financially supported by an Australian Postgraduate Award. I have also been provided resources under James Cook University’s HDR Minimum Resources policy.

### A Note on Format and Terminology

I have adopted a “thesis with publications” format. Chapters which have been published as journal articles are presented in their manuscript form (in compliance with the self-archiving policies of respective journal publishers). In all cases, these are post-peer-reviewed, pre-copyedited manuscripts. Accordingly, the content of manuscript chapters is nearly identical to that of published articles, although some minor formatting changes have been made for inclusion in the thesis (e.g., page and table numbering, positioning of tables). British spelling is used in traditional thesis chapters, while American spelling is used in manuscript chapters (reflecting the house style of respective journals). Readers may notice other language disparities between chapters (e.g., whether *data* is treated as singular or plural). Again, this reflects differences in journal style.

A myriad of terms for pornography are used within the pornography effects literature (e.g., *sexually explicit media*, *sexually explicit material*, *sexually explicit Internet material*, etc.). I feel that *pornography* is the most direct and thus have favoured its use. In this thesis I use the terms *pornography use* and *pornography consumption* interchangeably.

## Abstract

There is a great deal of concern regarding the effect that widespread pornography use will have on the attitudes and behaviours of consumers. This concern tends to focus on men's use of pornography. For example, it has been asserted that pornography use has a pernicious influence on men's attitudes toward, and interactions with, women (both within, and outside of, romantic relationships). This research aims to systematically investigate the effects of men's use of pornography, with a particular focus on men's sexual relationships and attitudes toward women. Two online surveys and an experiment were conducted ( $N = 460, 378$ , and  $418$  respectively). All studies sampled men exclusively.

Data from the first survey was used to construct a short-form version of Hald and Malamuth's (2008) Pornography Consumption Effects Scale. Responses on this short-form version of the scale suggest that most men perceive pornography to have a greater positive than negative effect on their sex lives, sexual knowledge, attitudes toward sex, attitudes toward women, and life in general. This said, small negative effects were reported across all these domains. The first survey also assessed sexism (old-fashioned and modern sexism), relationship hostility, self-reported likelihood of rape, and self-reported likelihood of the use of sexual force. While level of pornography use showed a small positive relationship with sexual-force likelihood, it was found to be orthogonal to sexism, relationship hostility, and rape likelihood. Use of violent and/or humiliating pornography specifically showed a small positive association with relationship hostility, rape likelihood, and sexual-force likelihood. It has been previously suggested that perceived realism of pornography and agreeableness (the big-five personality factor) may moderate the relationship between pornography use and attitudes toward women. Neither perceived realism nor agreeableness were found to moderate pornography's relationship with sexism, relationship hostility, or likelihood of rape or sexual force.

Pornography use showed a small association with sexual dissatisfaction among partnered men in both survey samples (but was predictive of relationship dissatisfaction in the second survey only). It has been suggested that pornography use may negatively impact romantic relationships by creating a preference for the kinds of sexual practices commonly depicted in pornography (a preference which then goes unmet within real-world relationships). While pornography use was moderately, positively associated with interest in engaging in the kinds of sexual practices commonly depicted in pornography in both surveys, interest in “porn-like” sex was not predictive of sexual or relationship dissatisfaction. In fact, the findings of the second survey suggest that pornography use may positively impact relationships by promoting sexual variety. The data were consistent with a model in which pornography use negatively impacts sexual satisfaction via increased masturbation frequency (a behaviour which was highly positively correlated with pornography use in both survey samples).

The thesis experiment was developed with the goal of establishing a cause-and-effect relationship between pornography use and perceptions of women’s sexual behaviour (as much of the pornography effects literature is cross-sectional). As part of the experiment, participants were either exposed to non-pornographic control videos or pornographic videos in which a male taxi driver has sex with a female passenger. Experimental exposure to pornography was not found to increase perceptions of the probability of women engaging in porn-like sex in situations similar to those depicted in the experimental stimulus material. However, past exposure to taxi-themed pornography was associated with judging women to be more likely to engage in porn-like sex with a male taxi driver. Similarly, past exposure to workplace-themed pornography was associated with judging women to be more likely to engage in porn-like sex with a male boss. The latter two findings are consistent with the notion that pornography influences men’s perceptions of what is sexually normative.



The results of the research suggest that pornography use has both positive and negative effects on the lives of male consumers. The findings regarding pornography's association with attitudes were mixed. If pornography does shape the attitudes of users, this is most likely in relation to messages which pornography frequently and emphatically communicates (e.g., *porn-like sex is normal and enjoyable* messages in general pornography and *sexual violence is acceptable* messages in violent pornography).

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## Chapter 1: Introduction

The production of sexual imagery has a long history. In 2003 German archaeologists unearthed the remains of two 7000-year-old clay statues. These anatomically-realistic statues depict a man and woman engaging in coitus (“Adonis protzt mit mächtigem Gemächt”, 2003; Diver, 2005). The *Turin Erotic Papyrus*, dated to 1150 BCE, is an Ancient-Egyptian scroll, one-third of which humorously depicts animals performing human activities. The remaining two-thirds feature men and women in various sexual positions (Shokeir & Hussein, 2004). For this reason, the papyrus has been dubbed “the world’s first men’s mag” (Heritage Key, 2011, para. 3). So many sexually provocative artefacts were catalogued when Pompeii was excavated in the 1800s that a special wing of the British Museum, the Secretum, was established to house them safe from the view of the public (Gaimster, 2000). And Johann Gutenberg’s printing press, invented in the mid-1400s (Eisenstein, 2005), was being used to produce sexual imagery on a mass scale within a few decades of its creation (Briggs & Burke, 2007). One such early print, *Allegory on Copulation*, depicts a man and woman having sex on one end of a bench; the woman’s legs held high in the air. On the other end of the bench stands a large, winged penis wearing a collar and bell (National Gallery of Art, 2000).

Clearly the creation and consumption of sexual imagery is not a new phenomenon. What is new is the ease with which sexual images can be disseminated via the Internet. Today pornography is a vast industry. It is believed that MindGeek—the company which owns eight of the ten largest pornographic websites—uses more bandwidth than Twitter, Amazon, and Facebook (Auerbach, 2014). CNBC (2007) estimates pornography to be a \$13 billion industry. Internet pornography is affordable, easily accessible, and allows the user to consume content anonymously. A. Cooper (1998) describes this as the “Triple A Engine” of Internet pornography.

Since the late 1990s, when A. Cooper proposed his triad, we have seen the mass uptake of smart phones, tablets, Wi-Fi, 4G mobile networks, and ADSL and fibre-optic Internet connections in the home. Clearly pornography is more accessible than ever before. Given this boom in accessibility, the influence that pornography may have on attitudes and behaviours has become a pertinent question, spurring interest from academics, media commentators, and even politicians. Former Republican senator, Rick Santorum, felt strongly enough about the issues to include the following statement on his presidential-campaign website:

America is suffering a pandemic of harm from pornography. A wealth of research is now available demonstrating that pornography causes profound brain changes in both children and adults, resulting in widespread negative consequences. Addiction to pornography is now common for adults and even for some children. The average age of first exposure to hard-core, Internet pornography is now 11. Pornography is toxic to marriages and relationships. It contributes to misogyny and violence against women. It is a contributing factor to prostitution and sex trafficking. (Mikkelsen, 2012, para. 2)<sup>1</sup>

Notable social psychologist and former president of the American Psychological Association (American Psychological Association, n.d.), Phillip Zimbardo, is similarly concerned about Internet pornography, especially its impact on young men. In an op-ed piece, Zimbardo and his colleague describe the use of pornography and videogames as “arousal addictions.” They go on to highlight the pernicious psychological impact pornography has on male consumers:

The excessive use of videogames and online porn in pursuit of the next thing is creating a generation of risk-averse guys who are unable (and unwilling) to navigate

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<sup>1</sup> Unfortunately, Mr Santorum does not provide citation details of the “wealth of research” to which he refers.

the complexities and risks inherent to real-life relationships, school and employment.

(Zimbardo & Duncan, 2012, para. 5)

Radical-feminist, anti-pornography scholars, such as Gail Dines, paint an even bleaker picture. In one presentation Dines describes giving public lectures and meeting young women whom recount having been pressured into engaging in degrading sexual acts by their porn-addled partners:

I lecture across the country in colleges all over, and a student told me that she was talking to a boyfriend who wanted to actually date—which in the hook-up sites culture, believe me, is a big thing—and he said to her he had a deal breaker, and the deal breaker was that she had to let him cum on her face. (TEDxTalks, 2015, 6:15)

In another video she describes young men after her lectures “lining up, some of them in tears, begging for help to get off pornography” (Truth About Porn, 2016, 0:59). Dines is the founder of Culture Reframed, a non-profit organisation dedicated to recognising pornography as “the public health crisis of the digital age” (Culture Reframed, n.d., para. 1).

There are even online communities devoted to helping users abstain from Internet pornography, such as the NoFap<sup>2</sup> subreddit. The subreddit description reads:

NoFap is a moderated community-centered website that hosts challenges in which users ("Fapstronauts") abstain from pornography and masturbation for a period of time ("rebooting"). This is NoFap's subreddit. Whether your goal is casual participation in a monthly rebooting challenge as a test of self-control, or whether excessive masturbation or pornography has become a problem in your life and you want to quit for a longer period of time, you will find a supportive community and plenty of resources here. (NoFap, n.d., Introduction, para. 1)

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<sup>2</sup> *Fap* is Internet slang for masturbation.

One may criticise the abovementioned commentators for not supporting their claims with systematically-derived empirical evidence. Nonetheless, these claims are indicative of the substantial public and academic concern regarding the impact that widespread pornography use will have on the psychological functioning of consumers, especially male consumers.

This thesis seeks to empirically explore exactly this issue. It places a particular focus on the ways that pornography consumption may impact men's attitudes and behaviours in relation to women and sexual relationships. This chapter will give the reader an outline of the aims and approach of this research. However, before this is done, it is worth briefly clarifying what is meant by the term *pornography*.

### **Defining Pornography**

Defining *pornography* is difficult, even for pornography researchers (see L. Campbell & Kohut, 2017; Short, Black, Smith, Wetterneck, & Wells, 2012). Famously, when Associate Justice of the United States Supreme Court, Potter Stewart, was asked to define pornography in the *Jacobellis v. Ohio* obscenity case he could not, instead responding "I know it when I see it" (Gewitz, 1996). While associative justices may be satisfied with such a haphazard approach to operational definitions, in the field of psychology we aim to be more precise. For the purposes of this thesis I will use the following definition of pornography:

Any kind of material that aims to create or enhance sexual feelings or thoughts in the audience and, at the same time contains: (1) explicit depictions of the genitals, and/or (2) clear and explicit depictions of sexual acts such as vaginal intercourse, anal intercourse, oral sex, masturbation etc.

As recommended by Short et al. (2012), this definition takes into account both the form (depictions of sex and genitals) and function (to sexually arouse the viewer) of pornography.

While some authors—particularly those operating in the radical-feminist, anti-pornography tradition (see Chapters 3 and 4)—might argue that pornography is inherently violent, in this thesis I distinguish between violent and general pornography. This is important as research indicates that the use of violent and non-violent pornography may differently impact consumers (e.g., Allen, D’Alessio, & Brezgel, 1995; Hald, Malamuth, & Yuen, 2010; Wright, Tokunaga, & Kraus, 2016b). The issue of what exactly constitutes violent pornography is discussed further in Chapter 3. How pornography was defined for those who participated in the studies conducted as part of this thesis is further discussed in Chapter 5.

### **Research Goals and Thesis Structure**

The remainder of this chapter outlines the goals and structure of this thesis. The work follows a “thesis with publications format” format, comprising of a combination of traditional thesis chapters (Chapters 1, 2, 3, 5, 10, and 12), manuscripts of published/in press journal articles (Chapters 5, 6, 9, and 11), and manuscripts of articles to be submitted for publication (Chapters 8).

The thesis focuses on men’s use of pornography (although I acknowledge that women’s pornography consumption is an interesting and worthwhile area of inquiry). There are three reasons for this. First, a great deal of research indicates that, as a group, men are significantly more likely to consume pornography than women, and male pornography users consume pornography significantly more frequently than female pornography users (e.g., Böhm, Franz, Dekker, & Matthiesen, 2014; Chi, Bongardt, & Hawk, 2015; Hald, 2006; Hald & Malamuth, 2008; Paul & Shim, 2008; Price, Patterson, Regnerus, & Walley, 2016; Regnerus, Gordon, & Price, 2016; Shaughnessy, Byers, & Walsh, 2011). Meta-analytic work conducted by Petersen and Hyde (2010, 2011) further illustrates this point. Their analysis utilised both large-scale national datasets and smaller studies to assess the *gender similarities*



*hypothesis* (the hypothesis that gender gaps in behaviours and attitudes are not as large as is commonly believed) in relation to 30 sexual behaviours and attitudes. Their analysis found a robust gender gap in relation to the incidence and frequency of pornography use, in which men were much more likely to report using pornography. In fact, use of pornography was associated with the largest gender gap of any of the behaviours or attitudes assessed (Cohen's *d* averaged .63 across the smaller studies and ranged from .32 to .50 across the large datasets). This gender difference was not moderated by sample age, year of study publication, or the gender egalitarianism of the country in which the study was conducted. This suggests that the pornography use gender gap is not merely the result of women underreporting their pornography use due to societal prohibitions against such behaviour. Second, there is evidence to indicate that men and women tend to use pornography differently. For example, compared to men, women are significantly more likely to view pornography with a sexual partner (Carroll, Busby, Willoughby & Brown, 2017; Hald, 2006). Third, much of the media and academic speculation regarding the impacts of widespread pornography use concentrates on men's pornography consumption specifically.

As will be demonstrated in subsequent chapters, pornography research is an extension of the media effects research tradition more generally. The fundamental question of media effects research is: Who is watching what, and to what effect? This thesis has been structured around this question, with content being divided accordingly.

### **Who is Watching?**

Chapter 2 investigates "Who is watching?" by determining what is typical of men's pornography consumption. The chapter aims to provide a picture of the average male pornography user. This is done through a review of recent empirical studies reporting descriptive statistics on men's pornography consumption. The chapter explores the prevalence and frequency of men's pornography use (including the use of violent

pornography), how men access pornography, and the sexual behaviours (e.g., masturbation, partnered sex) which accompany pornography use.

### **Watching What?**

Chapter 3 seeks to investigate the content of modern, mainstream pornography. This is done to explore the kinds of messages that pornography users would be exposed to as a result of their consumption. The chapter is presented in two parts. First, published content analyses of contemporary, mainstream pornography are reviewed. This review is discussed in terms of a number of themes: violence within pornography, degradation and objectification within pornography, and the sex acts depicted in pornography. Second, a quantitative analysis of the metadata of several popular pornographic websites is presented.

### **And to What Effect?**

The question of “To what effect?” takes up the bulk of this thesis. The first chapter of this section, Chapter 4, gives an overview of theoretical literature relevant to this question. The chapter focuses on providing a theoretical rationale as to how (and under what circumstances) pornography may shape the attitudes and behaviours of consumers. Together, Chapters 2, 3, and 4 provide context for the subsequent empirical investigations into pornography’s impact on men’s attitudes and behaviours in relation to women and relationships. The original research conducted as part of this thesis is comprised of two cross-sectional surveys and an experiment. To reflect the thesis by publication format, the findings of the surveys have been divided into chapters (Chapters 5–10), along thematic grounds.

Chapter 5 provides general methodological details of the surveys (e.g., the way pornography was defined for survey participants).

Chapter 6 outlines the construction and psychometric validation of a short-form version of Hald and Malamuth’s (2008) Pornography Consumption Effects Scale. The Pornography Consumption Effects Scale, Short-Form (PCES-SF) measures self-perceptions

of the impact (both positive and negative) that pornography has had on one's life. The scale assesses the self-perceived effects of pornography across the following domains: sexual knowledge, perceptions and attitudes toward the opposite gender, attitudes toward sex, sex life, and life in general.

In Chapter 7 the PCES-SF is utilised to investigate pornography consumers' perceptions of the influence that pornography has had on their lives. The chapter also identifies predictors of the self-perceived positive and negative effects of pornography use.

Chapter 8 investigates whether pornography use is predictive of sexism and relationship hostility among men. Potential moderators of these relationships (namely agreeableness and the perceived realism of pornography) are also considered.

Chapter 9 examines the effect of pornography on romantic relationships. The association between partnered men's pornography use and their sexual and relationship satisfaction is examined, as is pornography's association with men's sexual preferences within romantic relationships. Whether masturbation frequency or preference for "porn-like" sex<sup>3</sup> mediate the relationship between pornography use and feelings of sexual and romantic dissatisfaction is assessed.

Chapter 10 presents survey findings which were not included in Chapters 6–9 due to journal word-length restrictions. The chapter outlines further descriptive statistics in relation to men's pornography consumption (e.g., the average age at which consumers first accessed pornography and the genres of pornography consumed), the self-perceived effects of pornography consumption among gay and bisexual men,<sup>4</sup> participants' beliefs regarding the effect pornography has on society, and the association between pornography use and the self-reported likelihood of committing rape or sexual assault.

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<sup>3</sup> By "porn-like" sex, I mean the kinds of sexual practices and sexual situations commonly depicted in mainstream pornography (e.g., unprotected sex with a near-stranger, rough sex, ejaculation onto the partner). The notion of porn-like sex is further discussed in subsequent chapters.

<sup>4</sup> For reasons outlined in the chapter, Chapter 7 focuses on the self-perceived effects of pornography among self-identified, heterosexual men.

Chapter 11 outlines the results of the aforementioned experiment. This experiment investigates whether exposure to pornography affects consumers' social judgements, in particular, men's perceptions of women's willingness to engage in porn-like sex. In the experiment it is hypothesised that the judgements of those who have been exposed to very specific kinds of pornographic material will show a greater congruence with the behaviours and attitudes typically depicted in such material.

Chapter 12 provides a summary and synthesis of findings. The implications of findings and recommendations for future research are also discussed.

## Chapter 2: Who is Watching? Men's Pornography Use

If someone was to suggest to you that frequent pornography use undermines men's sexual satisfaction, or that violent pornography exposure encourages callousness towards women, you might ask "What proportion of men are frequent pornography users?" or "Is it common for men to view violent pornography?" Unfortunately, discussions around pornography's potential influence (from both lay and academic commentators) often omit important contextual information about men's pornography use. This may reflect the author's belief that the ubiquity of pornography use is a forgone conclusion. Alternatively, authors may not feel confident in reporting any particular set of statistics, as figures on pornography use can vary substantially between studies depending on sampling and methodology. This chapter aims to offer insight into the pornography use behaviour of adult males by providing a review of recent empirical research on the topic. This is done to contextualise men's pornography use and, thus, inform the subsequent investigation into the effects of pornography.

It is important to recognize that, because of the Internet, pornography is now more accessible than ever before. For this reason, studies into pornography use conducted 15 or even 10 years ago may not reflect current usage patterns. As the goal of this chapter is to provide insight into men's pornography use as it stands currently, I have chosen to focus primarily on studies published since 2010. Furthermore, so that the review better reflects the general population of pornography consumers, I have avoided studies which sampled deviant (e.g., sex offenders) or clinical (e.g., men seeking treatment for sexual health issues) populations.<sup>1</sup>

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<sup>1</sup> The studies reviewed in this chapter were identified using the database Scopus. Scopus indexes abstracts across the life sciences, health sciences, social sciences and humanities. Searches were performed to return studies with *pornography* or some derivative (e.g., *porn* and *porno*) and/or *sexually explicit* (which encompasses *sexually explicit material*, *sexually explicit Internet material*, *sexually explicit videos*, *sexually explicit Internet videos* and *sexually explicit images*) in the title, abstract or keywords. Articles were then sorted for adherence to the following inclusion criteria: 1) written in English, 2) published between the start of 2010

For ease of reading, the review is organized into two parts. The first section focuses on findings derived from large-scale, nationally representative datasets. In the second section, smaller studies—many of which employed convenience samples—are reviewed. A preliminary review of the literature suggested some differences in the pornography consumption behaviours of heterosexual men and gay and bisexual men (whether these inconsistencies reflect true between-group differences, or are the result of other factors, is discussed later in the chapter). For this reason, studies of primarily heterosexual participants are discussed separately to studies which targeted gay and bisexual men.

As will be demonstrated, while the large-scale surveys reviewed in the first part of the chapter are laudable for the quality of their samples, they are often lacking in terms of the thoroughness with which pornography use is measured (e.g., many of these surveys only included one or two items assessing pornography use). Alternatively, while some of the studies discussed in the second half of the chapter are limited in terms of generalisability (e.g., the mean age of many of these samples is under 25), collectively they provide a wealth of data regarding the nature of pornography use, because of their primary focus on assessing pornography consumption. Both types of studies are reviewed to provide a more thorough understanding of men's pornography use. The discussion of smaller studies is organised under the following themes: 1) overall prevalence of pornography use, 2) frequency of pornography use, 3) consumption of violent pornography, 4) media used to access pornography, and 5) sexual behaviours associated with pornography use.<sup>2</sup>

### **Large Dataset Research**

The first of the large-dataset studies to be discussed (Rissel, Richters, de Visser, McKee, Yeung, & Caruana, 2017) makes use of data collected as part of the Second

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and the end of 2017, 3) sampled at least 100 adult males, 4) reports on pornography use among male participants (although, this does not need to be the sole focus of the study), and 5) does not sample deviant or clinical populations. Additional studies were identified from the reference lists of the studies collected through Scopus.

<sup>2</sup> In the below discussion I use *N* to refer to the size of an overall sample and *n* to refer to the size of a subsample.

Australian Study of Health and Relationships. This survey utilised computer-assisted telephone interviewing to collect a nationally representative sample of Australians aged 16 to 69 ( $N = 20,094$ , men = 49.6%). The majority (84.1%) of the men sampled reported viewing pornography at some point, with 75.7% of these men (63.7% of males) indicating that they had viewed pornography in the past year. Among men, being younger and identifying as gay or bisexual were found to be predictive of using pornography in the past year.

Herbenick, Bowling, Fu, Dodge, Guerra-Reyes, and Sanders (2017) conducted a smaller, nationally-representative survey of American adults aged 18 to 92 using a probability-based survey panel ( $N = 2,021$ , men = 48.2%). The survey assessed the prevalence of various sexual behaviours. In terms of pornography use, participants were asked whether they had watched sexually explicit videos or DVDs,<sup>3</sup> looked through sexually explicit magazines, or read erotic stories ever, in the past year, and in the past month. For sexually explicit videos/DVDs, 82.3%, 53.4%, and 35.3% of the men sampled indicated that they had consumed such material ever, in the past year, and in the past month respectively. For magazines, 79.0% of men indicated lifetime use. Figures for past-year and past-month magazine use were 22.1% and 7.5% respectively. Over half of male participants (57.2%) had read erotic stories at some point, 23.0% had done so in the past year, and 8.6% had done so in the past month.

The General Social Survey (GSS) is a frequently utilized data source in the pornography research literature (e.g., Kohut, Baer, & Watts, 2016; Tokunaga, Wright, & McKinley, 2015; Wright, 2013b). The GSS is a large-scale, full-probability survey conducted biennially in the U.S. by the National Opinion Research Centre of the University of Chicago (Smith, Davern, Freese, & Hout, 2018). The survey has been running since 1972. Since 1973, most GSS iterations have assessed participants' pornography use with the following item:

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<sup>3</sup> The exact phrasing used in the article, "Watched sexually explicit videos or DVDs (porn)" (p. 10), implies that this includes viewing videos via the Internet.

“Have you seen an X-rated movie in the last year?” Price, Patterson, Regnerus, and Walley (2016) summarise participants’ responses to this question over the period 1973 to 2012. The authors report that for the period 1973–1980, 44.9% of young men (18–26 years) reported having seen an X-rated movie in the past year, whereas markedly fewer older men (54–62 years) reported having done so (13.6%). For the period 2008–2012, 61.5% of younger men and 22.5% of older men reported having watched an X-rated movie in the past year. The authors provide evidence for both a cohort and age effect on pornography consumption; men appear to be more likely to consume pornography now than previously, and younger men are more likely to consume pornography than older men. It should be noted that the authors believe changes in pornography consumption over time have been relatively modest: “[cohort] changes are likely much smaller than what might be expected” (p. 19). Wright (2013b) makes a similar conclusion based on his analysis of GSS data from 1973 to 2010.

As a supplement to the work conducted by Price et al. (2016), I have analysed GSS data from 2014 and 2016 (which are the most current GSS data available at the time of writing; Smith et al., 2018). This analysis found that in 2014, 34.4% of the 756 men interviewed indicated that they had seen an X-rated movie in the past year. In 2016 this figure was similar (39.1%,  $n = 877$ ). Table 2.1 reports on past-year consumption by age group. As can be seen, in the years 2014 and 2016 past-year consumption was highest among younger participants (> 60%). Consistent with the findings of Price et al. (2016), past-year consumption tapered-off among older age groups.



Table 2.1

*Percentage of Men Who Indicated That They Had Watched an X-Rated Movie in the Past Year as part of the 2014 (n = 756) and 2016 (n = 877) GSS*

Age group	GSS 2014	GSS 2016
18–26	64.56	60.17
27–35	56.10	61.81
36–44	44.35	50.71
45–53	29.51	35.66
54–63	19.58	23.37
64+	12.80	15.87
Age groups combined	34.39	39.11

While the GSS is praiseworthy for the representativeness of its sample, GSS data is not without limitations. One major limitation is its use of a single dichotomous item (“Have you seen an X-rated movie in the last year?”) to assess pornography use. Such an approach says very little about the frequency of porn users’ pornography consumption. Furthermore, as others have pointed out (Kohut et al., 2016; Price et al., 2016; Regnerus, Gordon, & Price, 2015), the term *X-rated movie* is outdated and ambiguous. Some may interpret it as referring only to feature length films. It is unclear if the average survey respondent would consider the typically-short clips featured on pornographic tube-sites<sup>4</sup> to be “movies” (see Chapter 3 for a discussion of the typical length of tube-site clips). Furthermore, the term *X-rated movie* does not capture the consumption of pornographic still images, something which is relatively common (Peter & Valkenburg, 2011a, 2011b, 2011c). Another limitation of GSS data is that the survey is administered via in-person interviewing.<sup>5</sup> Participants may be less inclined to truthfully report their pornography use in the presence of others. Research supports the notion that participants’ perceptions of anonymity may impact responses on surveys assessing sexual behaviour (Mustanski, 2001; Regnerus et al., 2015). For these reasons, GSS data may underestimate pornography use.

<sup>4</sup> Websites which mimic YouTube’s format

<sup>5</sup> Since 2002, the GSS has used computer assisted personal interviewing. However, researchers are still typically present while participants complete the survey (Smith et al., 2018).

Regnerus et al., (2015) reviewed four large-scale, nationally representative surveys of U.S. adults: the GSS, the National Study of Youth and Religion, the New Family Structures Study, and the Relationships in America Project. The first two of these studies utilised in-person interviewing, while the latter two employed anonymous computer surveying. All four studies included at least one item assessing participants' pornography use. The authors used various statistical techniques to compare, and probe the validity of, the frequency estimates provided across the four surveys. Based on this analysis, the authors conclude that the past-use estimates generated as part of the Relationships in America project ( $N = 5,165$ , men = 46.9%) are likely the most valid. The findings of this particular survey (conducted in 2014) suggest that 46% of U.S. men aged between 18 and 39 intentionally view pornography in a given week, 56% in a given month, and 69% in a given year. Based on their analysis, the authors also suggest that in-person interviewing may significantly underestimate pornography consumption when compared to anonymous computer-based survey methodologies.

### **Smaller Studies of Heterosexual Men**

#### **Overall Prevalence**

The smaller studies identified as part of this review typically reported the percentage of participants who had seen pornography at some point in their lives. Fourteen studies were identified in which more than 90% of the men sampled reported having viewed pornography at some point (Blais-Lecours, Vaillancourt-More, Sabourin, & Godbout, 2016; Bulot, Leurent, & Collier, 2015; D'Abreu, 2013; Donevan & Mattebo, 2017; Drouin & Miller, 2016; Gonsalves, Hodges, & Scalora, 2015; Hald & Mulya, 2013; Kvalem, Træen, Lewin, & Štulhofer, 2014; E. M. Morgan, 2011; Romito & Beltramini, 2011; Træen & Daneback, 2013; Sun, Miezan, Lee, & Shim, 2014; Svedin, Åkerman, & Priebe, 2011). Furthermore, Rosenberg and Kraus (2014) reported that 98% of the men they sampled had masturbated while viewing pornography and in Franczyk, Cielecka, and Tuszyńska-Bogucka (2014)

93.1% of the sample self-identified as current pornography users. Therefore, both studies would have also found a lifetime viewing figure in excess of 90% if lifetime viewing had been measured. Two studies report lifetime viewing figures in the 80–89% range (Chi, Bongardt, & Hawk, 2015; Shaughnessy, Byers, & Walsh, 2011). Another two studies report lifetime viewing figures in the 70-79% range (Kasemy, Desouky, & Abdelrasoul, 2016; Weaver et al., 2011) and 60-69% range (Emmers-Sommer, 2013; E. A. Marshall, Miller, & Bouffard, 2017). Furthermore, Baltazar, Helm Jr., McBride, Hopkins, and Stevens Jr. (2010) found that 68% of the men they sampled had intentionally viewed Internet pornography at some point. Presumably this figure would be relatively close to the total percentage of participants in this sample who had seen any kind of pornography ever, given the popularity of Internet pornography (see below). However, it should be noted that this study was conducted with students at a conservative, religious university. As such, the sample may differ from the general population in terms of pornography use, or the sample may have been less inclined to truthfully report their pornography use (a problem which is further compounded by the fact that the study employed pen and paper survey administration in the presence of authority figures, i.e., research assistants). Together, these studies suggest that most men have some level of experience with pornography.

### **Frequency of Use**

**Use in the past year/six months/month.** Four studies asked participants whether they currently used pornography (Bridges & Morokoff, 2011; Franczyk et al., 2014; Poulsen et al., 2013; Romito & Beltramini, 2011). Among male participants these figures ranged from 74.1 to 93.1%. Other studies asked participants to indicate if they had accessed pornography over various time periods (e.g., in the past year, in the past month). To ease interpretation, these figures are presented in Table 2.2.

Table 2.2

*The Prevalence of Men's Pornography Use over Various Time Intervals*

Study	Prevalence (%)
Past year	
Kvalem, Træen, Lewin, & Štulhofer, 2014	98.9
Hald, Kuyper, Adam, & de Wit, 2013	88.2
Willoughby, Carroll, Busby, & Brown, 2016	70
Past 6 months	
Martyniuk, Briken, Sehner, Richter-Appelt, & Dekker, 2016	92.1
Sinković, Štulhofer, & Božić, 2013	79.5
E. M. Morgan, 2011	78.8
D. T. Cooper & Klein, 2018	75.25
Past month	
Böhm, Franz, Dekker, & Matthiesen, 2014	80
Past week	
Baltazar, Helm Jr., McBride, Hopkins, & Stevens Jr. (2010)	22 <sup>a</sup>

<sup>a</sup>Internet pornography specifically

In three studies conducted by Peter and Valkenburg (2011a, 2011b, 2011c) consumption over the past six months is given for four categories of pornography: Internet pictures of genitals, Internet videos of genitals, Internet pictures of sex, and Internet videos of sex. These figures ranged from 37 to 43%. Given that some participants may have only viewed one or two of these categories, 43% should be considered a possible underestimation of the number of male participants in the sample who had seen any kind of pornography in the past six months.

Taken together, the studies summarised in Table 2.2 would suggest that the majority of men (likely more than 75%) have viewed pornography in the past year/six-months. Past-month consumption is harder to ascertain given that only one study assessed consumption over this time interval.

**Weekly use.** Numerous studies have asked men to report the frequency of their pornography use. However, giving precise estimates regarding how frequently men access pornography is complicated by the fact that different studies tend to use different time scales

to measure consumption frequency (e.g., some studies had an option for twice weekly consumption, while others did not). This being said, many studies reported weekly viewing figures, or a closely related statistic. Thus, weekly consumption is focused on here.

Fifteen studies explicitly give the percentage of male participants who indicated that they watch pornography at least weekly (see Table 2.3). As can be seen, these figures differ markedly, ranging from 18.4 to 95%. Once again, the Peter and Valkenburg (2011a, 2011b, 2011c) studies provided consumption figures across four categories of pornography: Internet pictures of genitals, Internet videos of genitals, Internet pictures of sex, and Internet videos of sex. Between 14 and 16% of the 503 men sampled in these studies indicated that they watched any one category at least weekly. Again, these figures should be considered possible underestimations as some participants may view some of these types of pornography but not others. Accordingly, these studies are excluded from Table 2.3.

Table 2.3 also presents studies which report the percentage of male participants who consume pornography at least *several* times per week, which is similar to, but distinct from, *at-least-weekly* consumption. Here figures ranged from 40 to 62%. A study assessing consumption in the past week is also included in the table. While *consumption in the past week* differs from *at-least-weekly consumption* it is reasonable to assume that the two figures would be similar. It should however be noted that the generalizability and validity of this study (Baltazar et al., 2010) is questionable because of sampling and design. As noted earlier, this study was conducted at a conservative, religious university and utilised pen and paper survey administration in the presence of research assistants.

Table 2.3

*The Prevalence of Men's Frequent (Weekly) Pornography Use*

Study	Prevalence (%)	Number of men	Average sample age
Viewing at least weekly			
Bulot et al., 2015	18.4	303	< 25
Sinković, Štulhofer, & Božić, 2013	21.7	510	NR
Willoughby, Carroll, Busby, & Brown, 2016	25.0	1755	> 25, < 40
Poulsen, Busby, & Galovan, 2013	26.0	617	> 25, < 40
E. A. Marshall, Miller, & Bouffard, 2017	31.4	463	< 25
Hald, Kuyper, et al., 2013	38.7	1402	< 25
Svedin et al., 2011	39.1	1902	< 25
D. T. Cooper & Klein, 2018	40.1	282	< 25
Hald & Mulya, 2013	42.8	148	< 25
E. M. Morgan, 2011	58.1	326	< 25
Franczyk et al., 2014	66.5 <sup>a</sup>	131	< 25
Sun et al., 2014	74.1 <sup>b</sup>	685	< 25
Kvalem et al., 2014	78.2	459	< 25
Donevan & Mattebo, 2017	80	371	< 25
Rosenburg & Kraus, 2014	95 <sup>c</sup>	221	< 25
Viewing at least several times per week			
Landripet & Štulhofer, 2015	40, 57, 59 <sup>d</sup>	941, 212, 1559	> 25, < 40
Böhm, Franz, Dekker, & Matthiesen, 2014	43	796	< 25
Martyniuk, Briken, Sehner, Richter-Appelt, & Dekker, 2016	54	1062	< 25
Rosenburg & Kraus, 2014	62 <sup>c</sup>	221	< 25

Note. NR = not reported.

<sup>a</sup>Weekly use of Internet pornography specifically; <sup>b</sup>Weekly use for the purpose of masturbation specifically; <sup>c</sup>Sample limited to those who had viewed pornography in previous 6 months; <sup>d</sup>Measured across three samples.

The percentages reported in the third column of Table 2.3 were averaged (weighted by sample size)<sup>6</sup> to produce a weekly consumption estimate of 44.7% ( $N_{\text{pool}} = 14,708$ ). This figure should be considered a rough estimate only, and is probably only representative of weekly pornography consumption among younger men, given the average sample ages of the studies reviewed (see Table 2.3). It is worth noting that this estimate is close to the weekly consumption estimate generated as part of Regnerus et al.'s (2015) review of large-scale, nationally representative surveys: 46% of U.S. men aged 18–39.

**Time.** Several studies report the average amount of time participants spent watching pornography per week. The men sampled viewed 1.25 hr of pornography per week on average in Blais-Lecours et al. (2016) and 3 hr of pornography per week in Wéry and Billieux (2016). Gonsalves, Hodges, and Scalora (2015) found that their sample averaged 148 min of Internet pornography consumption per week and 42 min of traditional pornography consumption (e.g., pornographic DVDs or magazines). Downing Jr., Schrimshaw, Scheinmann, Antebi-Gruszka, and Hirshfield (2017) reported a median viewing time of 2 hrs per week ( $IQR = 1\text{--}3.75$  hrs) among the heterosexual men they sampled. In Hald and Mulya (2013) 56% of participants indicated that they watched more than 60 min of pornography a week.

### **Violent Pornography Use**

The potential impact of exposure to violent pornography is a major concern among researchers and the public alike. Accordingly, numerous studies have attempted to assess the prevalence or frequency of violent pornography use. A summary of recent research findings into men's exposure to violent pornography is provided in Table 2.4. For the sake of this summary, violent pornography has been broadly defined to include violent, degrading, and rape/forced-sex/coercive pornography. The exact terms used by researchers are presented in

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<sup>6</sup> See Appendix A for more information on the calculation of pooled proportions.

the second column of Table 2.4. All of the studies which measured the use of BDSM or sadomasochistic pornography also took a separate measure of violent pornography consumption. Thus, it seems likely that in these studies the authors presented BDSM and violent pornography as being distinct. As such, BDSM and violent pornography are discussed separately.

Estimates of past-year BDSM pornography use ranged from 9.3 to 27%, whereas estimates of past-year violent pornography use ranged from 0.4 to 19%. These upper estimates both came from the same study (Foubert, Brosi, & Bannon, 2011) which sampled fraternity members at a large U.S. university ( $N = 298$ ). Estimates of lifetime exposure to violent pornography ranged from 5 to 46.7%. The estimates produced as part of D'Abreu (2013) and Romito and Beltramini (2011; 46.7% and 45.6% respectively) are noticeably larger than the next highest estimate (15.6%). It should be noted that in D'Abreu (2013) a large percentage of the sample (33.5%) reported having committed a sexual assault. For this reason, the sample may not be representative in terms of attitudes towards the acceptability of violence against women. In the majority of the studies reviewed, fewer than 16% of male participants indicated having watched violent pornography ever.



Table 2.4

*The Prevalence of Men's Violent Pornography Use (in the Past Year and Ever)*

Study	Description used	Prevalence (%)	Number of men	Definition provided?
Past Year				
Hald, Kuyper, et al., 2013	BDSM; violent/forced sex	9.3%; 8.1%	1402	NR
Kvalem, Træen, Lewin, & Štulhofer, 2014	BDSM; violent/coercion	17%; 0.4%	459	NR
Foubert, Brosi, & Bannon, 2011	Sadomasochistic; rape	27%; 19%	298	Yes <sup>a</sup>
Ever				
Hald & Mulya, 2013	Violent	5%	148	NR
Bridges & Morokoff, 2011	Harmful/degrading	6.6%	217	NR
Svedin, Åkerman, & Priebe, 2011	Violent/forced-sex	12.8%	1902	NR
Gonsalves, Hodges, & Scalora, 2015	Violent; degrading	15.6%; 18.5%	237	NR
Romito & Beltramini, 2011	Violence against women; women enjoying violence	45.6%; 36.3%	154	Yes <sup>b</sup>
D'Abreu, 2013	Violent	46.7%	304	NR

*Note.* NR = not reported

<sup>a</sup>The author's use Carroll et al.'s (2008) definitions of sadomasochistic porn ("media consisting of sadomasochistic portrayals of bondage, whipping and spanking but without an explicit lack of consent in video, movies, magazines, books or online") and rape porn ("media consisting of sexually explicit rape depictions in which force is used with explicit lack of consent in videos, movies, magazines, books, or online"); <sup>b</sup>Porn depicting violence against women was defined as any of the following: the woman is tortured, mutilated, raped, gang raped, humiliated (a man/men urinate or defecate on her), killed, or subjected to other violent sex (p. 1315)

As can be seen from the Table 2.4, many studies do not report whether, or how, violent pornography was defined for participants. This is problematic as terms like *violent* are open to many interpretations. A lack of clarity here makes it difficult to determine the degree to which between-study differences in exposure to violent pornography are driven by between-study differences in the way violent pornography was operationally defined. It is noteworthy that the studies which engaged larger samples (e.g., Hald, Kuyper, et al., 2013; Svedin, Åkerman, & Priebe, 2011) tended to produce lower violent pornography consumption estimates. As above, proportions were averaged (weighted by sample size) for past-year BDSM pornography use, past-year violent pornography use, and lifetime violent pornography use. These figures were 13.3% ( $N_{\text{pool}} = 2,159$ ), 8.0% ( $N_{\text{pool}} = 2,159$ ), and 17.3% ( $N_{\text{pool}} = 2,962$ ) respectively.

Hald and Štulhofer (2016) used 5-point scales (where 1 = *not at all* and 2 = *to a small extent*) to assess the frequency of participants' use of various categories of pornography over the past year. Their findings further support the notion that use of violent and BDSM pornography is relatively uncommon. Among male participants ( $n = 630$ ), mean frequency of violent pornography use was 1.58 ( $SD = 1.02$ ). Mean frequency of sadomasochistic pornography use was similarly low at 1.57 ( $SD = .99$ ). Of the 27 categories of pornography assessed, violent and sadomasochistic pornography were ranked as the 22<sup>nd</sup> and 23<sup>rd</sup> most frequently viewed respectively.

### **Media Used to Access Pornography**

Twelve studies assessed male pornography users' utilisation of various media. A number of these studies compared the use of the Internet to access pornography with other media. In the majority of these studies (6/9), the Internet was found to be the most commonly employed medium (Hald & Mulya, 2013; Martyniuk, Dekker, Sehner, Richter-Appelt, & Briken, 2015; E. A. Marshall, Miller, & Bouffard, 2017; Rosenburg & Kraus, 2014; Sun,

Miezan, Lee, & Shim, 2015; Svedin, Åkerman, & Priebe, 2011). In two studies the Internet was found to be second (albeit a close second) to the use of videos/DVDs or television (Bridges & Morokoff, 2011; D'Abreu, 2013), and in one study the consumption of pornographic magazines was found to be as common as the consumption of Internet pornography among Japanese university students (Omori, Zhang, Allen, Ota, & Imamura, 2011).

Rosenburg and Kraus (2014) looked at different ways in which participants accessed Internet pornography. They found that while computers were used more often than smart phones, smart phones were employed relatively frequently, with 24% of males in the sample reporting having done so. Kvaalem et al. (2014) found that 30.8% of the 459 males they sampled used a phone or tablet to access pornography at least once per week on average, whereas 80% used a computer. A more recent study similarly found that more participants had used a computer or laptop to access pornography than a tablet or smartphone (Downing Jr. et al., 2017). The authors also report that only 10.5% of their sample had a paid subscription to a pornographic website. Sun et al. (2015) similarly found paying for Internet pornography to be relatively uncommon.

### **Sexual Behaviours Associated with Pornography Use**

Several studies assessed pornography-related sexual behaviours (e.g., masturbation, partnered sex). Shaughnessy et al. (2011) report that almost three-quarters (73.6%) of the 108 males in their sample had masturbated while watching pornographic videos at least once. Rosenberg and Kraus (2014) found that 98% of the 221 male students they sampled had masturbated while watching any kind of pornography. The authors also asked participants how commonly they masturbated on the occasions they viewed pornography. They report that approximately three-quarters of participants (76%) masturbated on more than three-quarters of the occasions they viewed pornography. In Wéry and Billieux (2016), 97% of the

men sampled reported masturbating while watching pornography. Træen and Daneback (2013) took a slightly different approach and asked participants how frequently they viewed pornography on the occasions they masturbated. They found that, on average, males viewed pornography on less than half of the occasions they masturbated (42.2%,  $SD = 35.2\%$ ) and 4.3% ( $SD = 10.6\%$ ) of the occasions they had partnered sex (it should be noted that these standard deviations are quite high, indicating a lot of variability in these behaviours).

Bridges and Morokoff (2011) asked participants their reasons for viewing pornography. The most common reason given among males ( $n = 217$ ) was *for solo sexual stimulation* (63.9%), followed by *for use during partnered sex* (48.4%). In Wéry and Billieux (2016) the most commonly given reasons for consuming pornography were *for sexual satisfaction* (94.4%), *to feel arousal* (87.2%), and *to achieve orgasm* (86.5%). In a sample of Korean men, pornography use for the purposes of masturbation occurred much more frequently than pornography use without masturbation (Sun et al., 2016). Qualitative interviews conducted by Böhm et al. (2014) and quantitative work carried out by Carvalheira, Træen, and Štulhofer (2015) further indicate that pornography consumption and solitary masturbation are closely linked among men. This being said, the latter study targeted coupled men with decreased sexual desire, and thus the results of this study may not generalise.

A few studies have reported on partnered use of pornography. In one (Böhm et al., 2014), 5% of the 2028 students sampled indicated that they had viewed pornography with a partner in the last month. In another (Maddox et al., 2011), 44.8% of participants ( $N = 1291$ ) indicated that they had done so at some point. In both these studies, these figures are not reported separately by gender. One large study of couples found that men were much more likely to report never viewing pornography with a sexual partner compared to women (Carroll, Busby, Willoughby & Brown, 2017). Finally, 90% of the Swedish 18-year-old

males sampled as part of a study conducted by Donevan and Mattebo (2017) indicated that they most typically watch pornography alone.

### **Smaller Surveys of Gay and Bisexual Men**

#### **Overall Prevalence**

There was greater consistency in terms of pornography consumption prevalence across the studies of gay and bisexual men, as compared to the studies of predominately heterosexual men. Three studies (Eaton, Cain, Pope, Garcia, & Cherry, 2012; Nelson et al., 2014; Rissel et al., 2017) report lifetime exposure to pornography in excess of 90%. In a further eight studies (Hald, Smolenski, & Rosser, 2013; Kvalem, Træen, & Iantaffi, 2016; Rosser et al., 2013; Rosser, Noor, & Iantaffi, 2014; Stein, Silvera, Hagerty, & Marmor, 2012; Træen, Hald, et al., 2014; Træen, Noor, et al., 2014; Træen et al., 2015<sup>7</sup>) lifetime exposure statistics are not reported, but statistics that would imply lifetime exposure greater than 90% are given (e.g., in Stein et al., 2012, 98.9% of participants reported having viewed pornography in the past three months).

#### **Frequency of Use**

**Use in the past three months.** In two datasets (Hald, Smolenski, & Rosser, 2013 and related studies; Træen, Noor et al., 2014 and related study) almost all participants (98.5% of 1391 men and 98.8% of 529 men respectively) reported having seen pornography in the past three months.

**Weekly use.** Stein et al. (2012) found that just under 70% of their sample of 821 men watched pornography depicting protected anal sex at least once per week (thus, the number of participants who watched any kind of pornography weekly would likely be higher). In two datasets approximately three-quarters of participants reported watching at least an hour of

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<sup>7</sup> Four of these studies utilised the same dataset (Hald, Smolenski, & Rosser, 2013; Rosser et al., 2013; Rosser, Noor, & Iantaffi, 2014; Træen, Hald, et al., 2014). Another two studies similarly report on the one dataset (Træen, Noor, et al., 2014; Træen et al., 2015). This is highlighted so as not to give the erroneous impression that similar prevalence figures were observed across multiple unique samples.

pornography per week (Hald, Smolenski, & Rosser., 2013 and related studies; Træen, Noor et al., 2014 and related study). Nelson et al. (2014) report that more than half of the 1170 men they sampled (57%) watched pornography daily, thus weekly consumption can be assumed to be higher than 57% for this study. In Downing Jr. et al. (2017) 81.6% of the gay men sampled ( $n = 534$ ) reporting watching pornography more than once per week, and in Kvalem et al. (2016) mean frequency of Internet pornography use was greater than weekly: 4.23 ( $SD = 1.12$ ) on a 6-point scale where 4 = *a few times a week* and 5 = *about once a day*. These estimates all suggest a weekly consumption figure that is higher than the pooled weekly consumption estimate produced from the studies of heterosexual men (44.7%).

**Time.** Four datasets report on the amount time participants watch pornography per week. In three of these datasets (Hald, Smolenski, & Rosser, 2013 and related studies; Træen, Noor et al., 2014 and related study; Downing Jr. et al., 2017), median time participants spent watching pornography per week was approximately 3 hrs (*IQRs* were 1.07–5.84 hrs, 1.2–6.8 hrs, and 1–5 hrs respectively). In the remaining dataset (Eaton et al., 2012) time spent watching pornography was measured on an 8-point scale where 3 = *1–1.5 hrs* and 4 = *1.5–2 hrs*. In this sample ( $n = 149$ ), the mean for this scale was 3.73 ( $SD = 2.16$ ).

### **Violent Pornography Use**

No studies were identified reporting on violent pornography use among gay or bisexual men specifically.

### **Media Used to Access Pornography**

Six datasets provide information on the media used to access pornography. In four of these datasets the Internet was the most frequently utilised medium for accessing pornography, followed by videos/DVDs, and then magazines (Kvalem et al., 2016; Træen, Noor et al., 2014 and related study; Silvera, Grov, Stein, Hagerty, & Marmor, 2015; Stein et al., 2012). In one dataset (Hald, Smolenski, & Rosser, 2013 and related studies), Internet

pornography use was divided into computer-based usage and phone/tablet-based usage. In this dataset, pornography was most frequently accessed using computers, followed by DVDs, and then phones or tablets. Kvaalem et al. (2016) also found computer-based pornography use to be more common than phone-based usage. However, both technologies were found to be utilised more frequently than DVDs.

Nelson et al. (2014) found that a significant percentage of their sample of 1170 men (30%) had viewed live webcam feeds. No other studies assessed the prevalence of live streaming pornography. Webcam feeds may involve interactions between the audience and performer (e.g., requesting that the performer execute particular acts) and thus may have a different effect than the passive consumption of videos or pictures. Future studies should assess the prevalence of viewing live webcam feeds among other populations.

### **Sexual Behaviours Associated with Pornography Use**

Træen and Daneback (2013) reported how commonly participants viewed pornography on the occasions they masturbated. In this study, gay, lesbian, and bisexual participants ( $n = 106$ ) reported that, on average, they viewed pornography on almost half of the occasions they masturbated (51.5%,  $SD = 35.8\%$ ) and 10.1% ( $SD = 15.2\%$ ) of the occasions they had sex with a partner. Nelson et al. (2014) took a different approach, asking participants if they had ever masturbated or had partnered sex while watching pornography. Respectively, 95% and 36% of participants ( $N = 1170$ ) indicated that they had. This second figure is supported by another dataset which found that 34.6% of the men sampled ( $N = 1391$ ) had watched pornography with a partner (Hald, Smolenski, & Rosser., 2013 and related studies). Nelson et al. (2014) also assessed participants' reasons for viewing pornography. The four most frequently endorsed reasons were *horny at the time* (89%), *wanting to orgasm* (82%), *boredom* (64%), and *stress relief* (50%).

## Summary

### Heterosexual Men

The primarily goal of this chapter was to provide contextualising information regarding men's use of pornography. Based on the review it seems safe to conclude that pornography consumption is common among heterosexual men (particularly younger men). Both the large-scale surveys and smaller studies suggest that the vast majority of men (> 80%) have accessed pornography at some point. Among the smaller studies (which typically utilised younger samples) past-year or past-six-month use of pornography was also high (> 75%). Among larger, more age-diverse samples, the prevalence of past-year or past-six-month consumption was lower, although still high (between 40–70% of men).

There were large variations between the smaller studies in terms of regular (weekly) viewing statistics. Almost all the studies which reported weekly viewing statistics employed younger samples (samples with an average age under 25). Pooling the weekly use estimates generated from these studies gave a weekly use estimate of 44.7%. As noted earlier, this estimate converges with the weekly use estimate generated by Regnerus et al. (2015): 46% of U.S. men aged 18–39. Accordingly, extant evidence would suggest that around half of younger men are regular pornography users. The percentage of older men who are regular pornography users is difficult to determine given the paucity of research on this subject. However, it seems safe to assume that this figure would be less than 50%, given that use of pornography in the past year is significantly lower among older men, as compared to younger men (see Table 2.1). Estimates of the average amount of time men spend watching pornography per week ranged from approximately 1–3 hrs. However, these estimates are based on a few studies only, all of which employed relatively young samples.

The literature indicates that the consumption of violent pornography is uncommon relative to pornography use more generally. Pooled prevalence figures suggest that fewer



than 20% of young men have accessed violent pornography at any point, and fewer than 10% have done so in the past year. However, it should be noted that a relatively low level of violent pornography consumption may still have negative societal repercussions if violent pornography really does effectively model violence against women, as some suggest (e.g., Hald, Seaman, & Linz, 2014). It should also be noted that across the literature there is a lack of clarity in terms of how violent pornography is operationalised (the issue of defining violent pornography is further discussed in Chapter 3).

The Internet appears to be the main method by which pornography is accessed, however it is not the only medium utilized. It could be argued that the medium chosen to access pornography is a matter of whichever is the most convenient. There is some evidence to indicate that viewing pornography is typically accompanied by masturbation. Partnered pornography consumption appears to be relatively uncommon, although this is based on a few studies only.

### **Gay and Bisexual Men**

Pornography consumption among gay and bisexual men appears also to be virtually ubiquitous, both in terms of lifetime viewing and regular viewing. The limited data available suggests that almost all gay and bisexual men have seen pornography at some point, and that the majority—possibly more than 75%—of gay and bisexual men are viewing pornography at least weekly. Several studies indicate that median time spent watching pornography per week may be as high as 3 hrs. Again, the data suggest that the Internet is the main medium used to access pornography, and that viewing pornography is linked to masturbation.

Some of the studies discussed formally compared pornography use by sexual orientation. These studies found that gay and bisexual men are significantly more likely to have consumed pornography in the previous year (Rissel et al., 2017) and spend significantly more time viewing pornography per week (Downing Jr. et al., 2017) than heterosexual men.

While estimates of pornography consumption generally were higher in the studies of gay and bisexual men, more research is needed before it can be concluded that gay and bisexual men consume more pornography than their exclusively heterosexual counterparts. Far fewer studies have been conducted with gay and bisexual participants. Furthermore, the representativeness of some of the samples generated as part of these studies can be questioned. For example, one study (Stein et al., 2012) recruited participants from pornographic websites. Another (Eatson et al., 2012) drew participants from a HIV intervention program. Those who visit pornographic websites are obviously very likely to be regular pornography consumers, and those who have been deemed to be at risk for contracting HIV may differ from the general population in terms of important variables such as attitudes toward sex and engagement in risky sexual behaviour. It could also be argued that the gay and bisexual community is more sex-positive than the heterosexual community, and thus the higher levels of consumption found among this population may simply reflect the fact that gay and bisexual men are less inclined to underreport their pornography use (which would suggest that the weekly consumption estimates for heterosexual men that were generated as part of this review may actually underestimate heterosexual men's pornography use).

## **Chapter 3: What's Being Watched? The Content of Contemporary, Mainstream Pornography**

The previous chapter gave an overview of men's pornography consumption behaviour. This chapter will provide insights into the content of contemporary, mainstream pornography, as well as the genres of pornography that consumers seek out. In this way, the chapter explores the messages that the average consumer of pornography would be exposed to as a result of his or her consumption. This chapter is presented in two parts. In the first, content analytic studies of mainstream pornography are outlined. In the second, analyses of pornographic website metadata (namely, common search terms and common content descriptors) are discussed. The results of an original analysis of website metadata are also presented.

### **Content Analytic Studies**

A number of content analytic studies have been identified for this review. This literature is diverse in terms of the mediums analysed (magazines, films, Internet-based videos, Internet-based still images) and the time periods covered (1980s through to the 2010s). Some of these studies themselves suggest that the content of pornography may differ by medium (Barron & Kimmel, 2000) and era (McKee, Albury, & Lumby, 2008). As was outlined in Chapter 2, research indicates that the Internet is the most commonly utilised medium for accessing pornography. Given that this review aims to assess the content of contemporary pornography, greater emphasis has been placed on more recent studies and studies focusing on Internet pornography. This being said, content analyses of pornographic DVD/VHS films are also discussed. Studies of pornographic magazines have been excluded from this review. This is because relatively few studies assess the content of pornographic magazines, and those which do (Malamuth & Spinner, 1980; Dietz & Evans, 1982), were

conducted in the 1980s. Furthermore, relatively few contemporary pornography consumers use magazines to access pornography (see Chapter 2).

This review is presented thematically in four parts: 1) violence in pornography, 2) objectification and degradation in pornography, 3) sex acts in pornography, and 4) other (which covers miscellaneous topics, such as racism in pornography). For each thematic area, Internet and film pornography are discussed separately and a summary is then given.

## **Violence**

**Internet.** Fritz and Paul (2017) compared mainstream, feminist, and “for-women” (pornography aimed at female viewers) Internet videos. Physical aggression was found in 31% percent of mainstream scenes. These aggressive acts ranged from spanking, to gagging (inserting the penis very far into the partner’s mouth, causing the partner to gag), to hitting. Verbal aggression occurred in 5% of mainstream scenes. Women were the targets of aggression significantly more often than men.

Shor and Seida (2019) analysed 269 videos uploaded to the website Pornhub (<https://www.pornhub.com>) between 2008 and 2016. Half of their sample videos were selected for being highly popular (in terms of number of audience views), with the remaining clips being selected at random. The authors used four measures of aggression: verbal aggression (such as name calling), suggestions of aggression in video title, visible aggression irrespective of consent (any instance of a predetermined list of aggressive acts), and non-consensual aggression (aggressive acts which are met with verbal or non-verbal signs of resistance). Verbal aggression was depicted in 50% of random videos and 28.6% of popular videos. Visible aggression occurred more frequently in random videos compared to popular videos (36.8% compared to 12.9%). Non-consensual aggression was rare, occurring in 9.2% of random videos and 1.4% of popular videos. Around 10% of the video titles analysed suggested aggression (10.5% of random video titles and 11.4% of popular video titles). The

authors state that they found no evidence that aggression had become more common in mainstream pornography over the period examined. In fact, they suggest that, by some metrics, pornography is becoming increasingly less aggressive. The study also found that inclusion of violent content is negatively predictive of video popularity.

Klaasan and Peters (2015) analysed 400 mainstream Internet videos. They found 37.2% of scenes to contain violence against women and 2.8% to contain violence against men. These violent acts were composed primarily of spanking and gagging. Women generally responded positively or neutrally to these acts. Non-consensual sex occurred in 6% of videos, and men and women were equally likely to be the target of non-consensual sex.

Vannier, Currie, and O'Sullivan (2014) analysed popular teen and MILF (an acronym of the phrase *mother I'd like to fuck*) Internet videos. While they did not specifically set out to assess videos for violence or aggression, they did record the frequency of specific sexual acts. In their study, spanking was found to occur in 28% of teen and 26% of MILF videos. They also found that in one teen video a female character was physically coerced into having sex. Shor (2019) similarly compared teen and "adult" videos (videos featuring women over 20, which would include, but is not limited to, MILF videos) using a sample of 172 popular Pornhub clips. As in Shor and Seida (2019; see above) videos were analysed for visible aggression as well as non-consensual aggression. Visible aggression was present in 36% of teen videos and 46% of adult videos (this difference between the teen and adult videos was non-significant). Non-consensual aggression was present in 11% of teen videos and 17% of adult videos (again, a non-significant difference).

Gorman, Monk-Turner, and Fish (2010) analysed 45 mainstream Internet videos, only one of which they categorised as violent. However, they do state that five videos depicted "a show of force by male actors when female actors resisted their sexual acts" (p. 137).

Mehta and Plaza (1996) assessed pornographic still images posted to forums on the early bulletin-board website, Usenet, in 1994. They found that 10% of Usenet images depicted bondage and discipline. Barron and Kimmel (2000) assessed depictions of sexual violence in pornographic magazines, pornographic videos, and stories taken from the Usenet forum *alt.sex.stories*. They found that 24.8% of magazines, 26.9% of videos, and 42.1% of the Usenet posts sampled contained sexual violence. In the latter category, the most common violent acts were: bondage, use of a weapon, and verbal aggression. While the two studies discussed in this paragraph do focus on Internet pornography, their findings may not reflect the content of *contemporary* Internet pornography, given the evolution of the Internet in the time since the studies were conducted (e.g., Usenet is no longer widely used).

**Film.** Salmon and Diamond (2012) compared bestselling heterosexual and gay pornographic films. They found violent acts to be uncommon in both heterosexual and gay pornography (mean number of violent acts per film was  $< 2$ ). Bridges, Wosnitzer, Scharrer, Sun, and Liberman (2012) analysed 300 scenes from bestselling pornographic films. In contrast to Salmon and Diamond, Bridges et al., (2012) found 88.2% of the scenes they analysed to contain acts of aggression. They report an average of 11.52 aggressive acts per scene. The most common type of verbal aggression was name calling (97.2% of the verbally aggressive acts recorded). The most common types of physical aggression were spanking (35.7% of the physically aggressive acts recorded), gagging (27.7%) and open-hand slapping (14.9%). The remaining aggressive acts consisted of hair-pulling, choking, and bondage. Women were overwhelmingly the targets of aggression. Aggressive behaviour was met with displeasure in only 4.9% of cases. Sun, Bridges, Wosnitzer, Scharrer, and Liberman (2008) compared bestselling pornographic films from male and female directors. They found that 85.2% of male-directed and 77% of female-directed scenes contained violence. Again, females were most likely to be the targets of violence. The three most commonly depicted

acts of physical aggression were: spanking, gagging, and open-hand slapping. Once again, violent acts were rarely met with displeasure.

McKee (2005; also reported on in McKee et al., 2008) analysed 838 scenes from a list of Australia's bestselling pornographic films. McKee found violence to be extremely rare, only occurring in 16 scenes (1.9% of scenes). Monk-Turner and Purcell (1999) analysed 209 vignette descriptions of pornographic videos. They found violence to be present in 17% of vignettes. However, only one instance of "extreme sexual deviance" (p. 64) was recorded. Interestingly, intimacy was far more frequently depicted in the vignettes (29%) than violence. Cowan and Campbell (1994) analysed 54 pornographic videos. They assessed aggression in terms of the percentage of characters to commit any one of six aggressive behaviours: hitting, rape, hair-pulling, holding down, penis slapping,<sup>1</sup> and pinching. Fewer than 10% of characters committed any of these behaviours. Yang and Linz (1990) analysed 60 X- and XXX-rated videos, finding fewer than 5% of videos to depict violence. Cowan, Lee, Levy, and Snyder (1988) assessed over 400 scenes from 45 widely available pornographic films. Physical aggression occurred in 23% of scenes, but 73% of films. Rape occurred in 6% of scenes, but 51% of films.

**Summary.** As can be seen, estimates of the prevalence of violence in mainstream pornography differ markedly, ranging from 1.9% of scenes (McKee, 2005) to 88.8% of scenes (Bridges et al., 2010). McKee (2015) discusses the issue of discrepancies in estimates of violence in mainstream pornography. He suggests that these divergent findings are the result of differences in the way in which violence and aggression are operationally defined. He observes that studies which produce lower estimates tend to include a consideration of consent in their operational definition of violence. For example, McKee et al. (2008) operationally defined violence as "Any form of behaviour directed toward the goal of harm;

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<sup>1</sup> While it is not directly stated, context clues would suggest that by "penis slapping" the authors mean slapping with the penis, rather than slapping a penis.

or injuring another living being *who is motivated to avoid such treatment* [emphasis added]” (p. 52).

Authors such as Bridges et al. (2010) and Sun et al. (2008) tend to employ operational definitions which deemphasise the intentions of those involved. Bridges et al. (2010) contend that this approach has two advantages. First, it avoids having coders make subjective interpretations of the intentions and motivations of the victims and perpetrators of violence. Second, it “captures aggressive or violent acts that have been naturalized” (p. 1067). It is argued that this is important as depictions of violence being met with a favourable response will send a permissive message about violence against women (an argument consistent with sexual script theory; see Chapter 4).

In contrast, McKee et al. (2008) argue that their consent-focused approach to defining violence better corresponds to what the average person understands violent pornography to mean:

Take spanking. Some people get their sexual thrills from being spanked. If you watch a video where a woman puts a man over her knee and spanks him, is that violence? He asks her to do it, and he’s obviously enjoying it, and she’s obviously enjoying it. But all the same, she’s spanking his buttocks. So is that violence?...

Many previous academic studies decided that they should count spanking as violence, no matter if all the people involved are enjoying themselves and have specifically requested the behaviour. That didn’t make sense to us. It’s not common sense. When people say that they’re concerned about violent pornography, we don’t think they mean consensual spanking. They mean rape. They mean people being beaten, scared, forced to have sex. (p. 52)



McKee (2015) also argues that ignoring the issue of consent when determining what constitutes violence risks stigmatising and pathologising those who engage in consensual sexual violence (i.e., practitioners of sadomasochism).

Shor and Seida's (2019) study—which found that while aggressive acts are relatively common in mainstream pornography, non-consensual aggression is not—lends support to McKee's (2015) argument that divergent findings into the prevalence of violence in mainstream pornography are driven primarily by differences in the way violence is operationally defined. It should be noted that a number of survey studies estimate the prevalence of violent pornography consumption among men to be under 15% (see Chapter 2). These figures are incongruent with the idea that mainstream pornography regularly depicts violence, suggesting that the average consumer's understanding of what constitutes violent pornography is more like that of McKee et al. (2008), than Bridges et al. (2010).

This issue of operationally defining violence aside, the literature is consistent on a few key points, namely that within contemporary, mainstream pornography: 1) spanking and gagging are the most frequently depicted violent acts, 2) other, arguably more serious, violent acts are depicted far less frequently, 3) violent acts are typically targeted at women and perpetrated by men, and 4) women typically respond positively to violent behaviour. Depictions of rape appear to be relatively rare, at least in contemporary pornography. This is not to say that rape pornography does not exist. It certainly does exist (see Gossett & Byrne, 2002). However, the available literature suggests that rape does not appear to feature heavily in contemporary, mainstream pornography.

### **Objectification and Degradation**

Of course, depicting violence is not the only way in which pornography may degrade women (and men for that matter). Several authors suggest that pornography may demean women in other ways. Accordingly, this review now turns to the literature around

objectification, degradation, and dehumanisation within pornography (different authors use different terminology here). Studies examining female agency within pornography are also discussed. These are included here as it has been suggested that a lack of female agency is indicative of female objectification (Klaasan & Peters, 2015).

**Internet.** Fritz and Paul (2017) assessed objectification referencing the following: extended close-ups of genitals, presence of double penetration, presence of gaping of the anus or vagina, presence of ejaculation onto the body or face, and presence of stripping and posing for the camera. They found that females were objectified in mainstream pornography more often than in feminist pornography or for-women pornography, and that women were more frequently objectified than men across all categories of pornography (although the gender gap in objectification was largest for mainstream pornography). They also assessed sexual agency (in terms of who initiated sex, who controlled the direction of sex, self-touching of genitals, and orgasm). Male performers were more likely to orgasm across all pornography types. No between-gender differences were detected for any of the other agency measures.

Klaasan and Peters (2015) assessed objectification along two dimensions: instrumentality and dehumanization. In terms of instrumentality, close-up shots of women's bodies occurred significantly more than close-up shots of men. Furthermore, men were more often manually and orally stimulated than women. Men were also more likely to orgasm than women. In terms of dehumanisation, men were somewhat more likely to engage in sex for their own pleasure. However, men and women were equally likely to initiate sex and more scenes showed close-up shots of women's faces (which the authors argue shows agency and humanises the character in focus) than men's faces. In just under half of scenes power was shared equally between men and women. Of those scenes with unequal gender power-dynamics, women were more likely to be submissive and men were more likely to be

dominant. Men and women were equally likely to be depicted in a higher social position (e.g., a boss as opposed to a secretary).

Vannier et al. (2014) found that women were more likely to initiate sex in MILF pornography and men were more likely to initiate sex in teen pornography. Similarly, women were more likely than men to be portrayed as having a higher social status and being in control over the pace and direction of sexual activity in MILF videos, with the reverse being true for teen videos. In the vast majority of videos (91%), men and women were portrayed as being equally sexually experienced. Male performers were more likely to appear nude than female performers. Shor (2019) similarly found that men were more likely to initiate sex in teen videos as compared to videos featuring women older than 20.

In contrast to Vannier et al. (2014), Gorman et al. (2010) found that female performers were more likely to appear nude than male performers (however, in 45% of videos level of nudity were roughly equivalent between genders). They also found that domination by a man was a commonly depicted theme (present in 33% of videos), as was submission by a female (47%). Exploitation was a theme in 22% of videos, although reciprocity was an equally common theme (22%). Roughly half of videos (49%) depicted women eagerly complying with all sexual requests and 47% of videos depicted ejaculation onto a woman's face.

Arakawa, Flanders, and Hatfield (2012) analysed Internet- and magazine-based pornographic still images from three countries: Norway, the United States, and Japan. They found that Norwegian pornography featured more empowering depictions of women than US pornography, which in turn featured more empowering depictions of women than Japanese pornography.

**Film.** Bridges et al. (2010) assessed the frequency of a number of “non-normative” and “degrading” sexual acts. They found ass-to-mouth, double penetration, and facial

ejaculation all to be common, occurring in 41.1%, 19.1%, and 58.6% of scenes respectively. Sun et al. (2008) similarly found ass-to-mouth, double penetration, and external ejaculation to be prevalent in mainstream pornography. They also found no evidence that the frequency of these acts differed between male- and female-directed films.

Monk-Turner and Purcell (1999) assessed degradation in terms of status inequality, vulgar references to women, subordination (a man giving orders to a woman), external ejaculation, sex for exchange (e.g., for money), and casual sex (indiscriminate availability of females). They found that status inequality, sex for exchange, and vulgar references to women were relatively uncommon (occurring in 19%, 12%, and 15% of vignettes respectively). However, external ejaculation and casual sex was much more common (occurring in 85% and 92% of vignettes respectively). Subordination was present in 39% of vignettes.

Cowan and Campbell (1994) found that in their sample of interracial pornography 43% of White women and 28% of Black women were recipients of facial ejaculation. Cowan et al. (1988) found the prevalence of external ejaculation to be as high as 97% in their sample. They also found that men were generally depicted as having a higher social status than women. Salmon and Diamonds (2012) reported that, among their sample, gay pornography depicted external ejaculation more often than heterosexual pornography, and that men and women were equally likely to initiate sexual encounters in heterosexual films.

Finally, McKee (2005; see also McKee et al., 2008) assessed the presence or absence of film conventions which encourage the audience to identify with a character (e.g., talking to the camera), as a way of assessing objectification. He found that male and female characters were equally as likely to be nameless and films were equally likely to be presented from the point of view of a male or female character. More male characters spoke to other characters, although when women spoke to other characters, they generally spoke for longer. Women

spoke to the camera more often, and for longer, than men. Furthermore, women were found to initiate sex more often than men. However, men were more likely to orgasm than women.

**Summary.** In terms of the objectification and degradation of women within mainstream pornography, results are mixed. Several studies indicate that women are often treated equally to men on indicators of agency, such as social status. Women are also somewhat more likely to be presented as the “star of the show,” generally receiving more camera time than men.

On the other hand, the literature indicates that in mainstream pornography men orgasm more often than women. Fritz and Paul (2017) argue that orgasm is “an indicator of embodiment and experiencing sexual pleasure” (p. 644), and therefore an important component of sexual agency. As such, these authors argue that infrequently depicting female orgasms is indicative of a disregard for female pleasure. This said, it should be acknowledged that pornography is a visual medium. Male orgasms may be easier to depict visually than female orgasms (by virtue of men’s ability to ejaculate). The discrepancy in male and female orgasms in mainstream pornography may be, at least partly, driven by this fact. This argument is also relevant to discussions of the meaning of external ejaculation in pornography (see below).

The literature indicates that men are more likely to be depicted as taking charge in sexual situations, and women are more likely to be portrayed as being submissive (although several studies found that control of the sexual situation was frequently shared by men and women). Interestingly, Vannier et al. (2014) found that this differed by genre, with women generally being in control in MILF pornography and men generally being in control in teen pornography. Both MILF and teen pornography are extremely popular genres (see the discussion of website metadata below). Whether consumers break into two distinct groups—

MILF fans and teen fans—or whether the average consumer regularly views both MILF and teen pornography is unknown.

It appears that sex acts such as double penetration, gaping, ass-to-mouth, and external ejaculation are commonly depicted in mainstream pornography. Several authors discussed in this review suggest that these acts are inherently degrading to women (e.g., Bridges et al., 2010; Cowan & Campbell, 1994; Cowan et al. 1988; Fritz & Paul, 2017; Gorman et al., 2010; Monk-Turner and Purcell, 1999; Sun et al. 2008). For example, Fritz and Paul (2017) write that:

A woman's body being a mere object can be portrayed in pornography by certain sexual acts and behaviors, such as when double penetration of a woman occurs, which suggests a woman's body is just a series of holes to be entered or when a woman's face or chest is ejaculated upon, suggesting a woman's body is simply an object to display the result of male pleasure instead of an embodiment of her own pleasure. (p. 641)

Opponents of pornography are particularly critical of external ejaculation. For example, Schauer (2005) argues that ejaculate is a visual metaphor for other excreta, thus external ejaculation “metaphorically debases femininity” (p. 55). However, other authors, such as Weitzer (2011), are critical of labelling any particular sex act as inherently degrading. Weitzer cautions against researchers making value judgements in regard to what constitutes proper or improper, good or bad, egalitarian or degrading sex.

As noted above, Salmon and Diamond (2012) found that external ejaculation was more common in pornography aimed at gay men, than heterosexual pornography. They argue that this is evidence that external ejaculation is not driven by contempt for women (as women would not feature in pornography aimed at gay men). Instead, they posit an argument regarding the visual nature of ejaculation: “the only proof of male sexual satisfaction is

ejaculation; if the male ejaculates inside his female co-star, the audience does not see it” (p. 198). In this way, external ejaculation acts as visual proof of male sexual pleasure (and hence indicates the authenticity of the sexual encounter to the audience). Whatever the motivation for, and meaning of, depictions of external ejaculation, it seems clear that the practice is ubiquitous within contemporary, mainstream pornography.

The review also suggests that women in pornography are typically indiscriminately available for sex, and meet all sexual requests with enthusiasm. This is perhaps not surprising given that pornography, by definition, involves depicting sex.

### **Sex Acts in Pornography**

While the prevalence of various sex acts (e.g., spanking, external ejaculation) have already been noted in relation to the discussion of violence and objectification within pornography, some studies have assessed the sex acts depicted in pornography more generally. These findings are discussed below.

**Internet.** Vannier et al. (2014) found that within their sample of MILF and teen videos, the most common sex acts were: vaginal intercourse (88% of videos), fellatio<sup>2</sup> (86%), and manual stimulation of males (58%). Manual stimulation of females (53%) and cunnilingus (43%) were less prevalent but still relatively common. Anal intercourse (15%) and anilingus (14%) were much less common. All of these acts occurred about as frequently in MILF and teen pornography. In Gorman et al. (2010) genital stimulation (90% of videos), fellatio (79%), and vaginal intercourse (68%) were the most frequently depicted sexual acts. Kissing on the lips (50%), female masturbation (38%), cunnilingus (37%), anal intercourse (32%), and male masturbation (13%) were less common.

**Film.** In Bridges et al. (2010) the most common sex acts were female-to-male oral sex (90% of scenes) and vaginal intercourse (86%). Male-to-female oral sex, female-to-female

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<sup>2</sup> Some authors use the terms *fellatio* and *cunnilingus* while others are more specific in regard to which gender is performing and receiving oral sex (e.g., *male-to-female oral sex*). In this discussion I have endeavoured to be as specific as authors’ descriptions allow.

oral sex and anal intercourse occurred in 54%, 23%, and 56% of scenes respectively. Sun et al. (2008) found that female-to-male oral sex was more common in male-directed films (93% of scenes) than female-directed films (67%), whereas female-to-female oral sex was more common in female-directed films (41%) than male-directed films (15%).

McKee (2005; see also McKee et al., 2008) recorded the total time each sex act was displayed on screen across his sample of pornographic films. He also coded vaginal intercourse differently by sexual position. The top ten most displayed sex acts were: vaginal intercourse (position: other), female-to-male oral sex, male-to-female anal sex, exhibitionism, vaginal intercourse (position: doggy style), vaginal intercourse (position: woman on top), male-to-female oral sex, dildo use, male masturbation, and female masturbation.

**Summary.** As can be seen, vaginal intercourse and female-to-male oral sex appear to be the most commonly depicted sexual acts in modern, mainstream pornography. Manual stimulation (of either sex), cunnilingus, anal sex, and masturbation (of either sex) is less prevalent, but still occurs frequently.

Female-to-female sexual contact was relatively common in the studies (which mostly assessed heterosexual pornography). The gender of film directors may impact which sexual acts are depicted. No evidence was found to indicate that the frequency of sexual acts differs greatly by genre (MILF or teen pornography).

In some ways the data is consistent with the idea that mainstream pornography is more heavily orientated towards men's pleasure than women's pleasure. Fellatio and manual stimulation of males was significantly more prevalent than cunnilingus and manual stimulation of females. This being said, cunnilingus and manual stimulation of women was still relatively common; suggesting that mainstream pornography does not totally neglect women's pleasure (and if pornography is driven by misogyny, one might expect it to totally disregard women's pleasure).



## Other

**Safe sex practices.** In mainstream pornography condom use appears to be rare. In two studies (Gorman et al., 2010; Vannier et al., 2014) fewer than 2% of scenes portrayed condom use. In another two studies (Bridges et al., 2010; Sun et al., 2008) these figures were 10.9% and 5.7% respectively. Safe sex was discussed in only 0.3% of scenes in Bridges et al. (2010), and not at all in Sun et al. (2008).

**Racism.** Cowan and Campbell (1994) analysed interracial pornography for racism. They found that 9.2% of characters verbalised a racial insult, while 21% verbalised a racial compliment. Black men performed less intimate behaviours than White men, and Black women were more likely to have violence perpetrated against them than White women. There was no significant difference between Black and White men or women in terms of the number of violent acts committed. However, Black characters were more likely to be depicted as having a lower social status than White characters. Furthermore, Black men were depicted as having large penises more frequently than White men. The authors conclude that: “pornography is racist as well as sexist” (p. 323).

More recently, Shor and Golriz (2019) content analysed a sample of 172 popular Pornhub videos. Purposive sampling was used to ensure an adequate representation of various ethnic/racial groups (e.g., Asian men and women, Latin men and women, Black men and women, White men and women). The authors coded for the presence of physically aggressive acts (irrespective of consent), as well as non-consensual aggression. The authors found some differences in aggression based on race. Black men were more likely to appear in videos depicting violence than White men. Furthermore, Black, Latino and Asian men were more likely to appear in videos with a high percentage of violence than White men. Latina and Asian women were more likely to appear in videos depicting violence than White

women. In contrast to Cowan and Campbell (1994), Black women were significantly less likely to appear in videos with non-consensual violence than White women.

To my best knowledge, Cowan and Campbell (1994) and Shor and Golriz (2019) are the only content analyses to directly assess racism in pornography—although Gorman et al. (2010) do note that 76% of the actors in their sample were White, and that only one scene portrayed sex between a Black man and Black woman. Given the age of Cowan and Campbell’s study and the mixed findings of Shor and Golriz’s study, it cannot be concluded with certainty whether modern, mainstream pornography is racist in its portrayals of minority characters, although it is possible that this is the case.

**Performer appearance.** The appearance of performers in mainstream pornography is discussed at length in McKee et al. (2008). They found that female performers tended to be young: 83% appeared to be aged 18–30, 13% aged 31–40, 2% aged 41–50, and 1% aged 51+. For male performers, youth was less vital: 49% appeared to be aged 18–30, 35% aged 31–40, 9% aged 41–50, and 2% aged 51+. Female performers also tended to be slim, although a range of other body types were reported: 65% were rated as slim, 24% were average build (untoned), 7% were average build (toned), less than 1% were “bulked up”, and less than 1% were unhealthily underweight. For male performers there was a greater emphasis on being muscular: 5% were slim, 30% were average (untoned), 31% were average (toned), 21% were bulked-up, and 7% were overweight. In terms of female performer’s breast size, 19% were rated small, 39% were rated average, and 42% were rated large. Twenty-nine per cent of female performers had had obvious breast surgery, 60% had not, and in 11% of cases coders were unsure. Among male performers, 3% had smaller than average penises, 42% had an average sized penis, and 55% had penises that were rated as larger than average.

The authors point out that while female performers were typically young and slim, there was still a great deal of diversity in terms of female performers’ body and breast size:

“We suspect that there is a much larger range of attractive body types shown in porn than there is in other media genres, such as advertising and fashion and women’s magazines” (p. 62). Male performers tended to be muscular and well-endowed, and in some ways the physical appearance of male performers was less diverse than that of female performers: “Women [in pornography] can have small breasts, but men are definitely not allowed to have small penises” (p. 68).

Cowan and Campbell (1994) assessed penis size in interracial pornography. They found that 21% of Black performers and 4% of White performers had large penises. Obviously, the figures reported by McKee et al. (2008) and Cowan and Campbell (1994) vary greatly. In Cowan and Campbell a large penis was designated if the female character was “unable to span the length of the penis with both hands” (p. 329). In McKee et al. it is not explicitly stated how a large penis was defined. As such, whether the discrepancy reflects a true change in pornography over time, or whether it is a result of between-study differences in the way that “large” was operationally defined is unclear.

Vannier et al. (2014) report that, in their analysis, male performers typically had groomed (46%) or no (35%) pubic hair. Female performers were more likely to have no pubic hair (61%), and about a third (30%) of female performers had groomed pubic hair.

**Length of videos.** Two studies report on the average length of freely available Internet videos. In Vannier et al. (2014) video length ranged from 2 to 37 min, with an average length of 9 min. Results are similar in Gorman et al. (2010), in which videos ranged from 3 to 29 min, with a mean length of 11 min. Given the consistency of these findings, 10 min seems like a reasonable estimate of the length of the average video on large, freely accessible websites such as Pornhub and YouPorn (<https://www.youporn.com>). My analysis of website metadata (discussed below) confirms this 10 min estimate.

## Popular Search Terms and Content Descriptors

Website metadata—in the form of search terms (the phrases that users type into a website’s search bar) and descriptors of web content (e.g., video tags and video categories)—provide an alternative method of assessing the content of modern pornography, while also providing insights into the kinds of content that consumers actively seek out. Below I outline three analyses of metadata from popular pornographic tube-sites.<sup>3</sup> The first analysis outlined was conducted by the website Pornhub. The second is an independent academic study of the tube-sites XNXX (<https://www.xnxx.com>) and XHamster (<https://www.xhamster.com>). In the third analysis, I examine the frequency of various content descriptors on the tube-sites Pornhub, YouPorn, and RedTube (<https://www.redtube.com>).

### Pornhub Insight Data

Pornhub is a pornographic website owned by MindGeek (who also own other large tube-sites such as YouPorn and RedTube, as well major pornographic production companies such as Brazzers, Reality Kings, and Digital Playground; Auerbach, 2014). Pornhub is ranked as the 40<sup>th</sup> biggest website on the Internet (as of June, 2017; Alexa, 2017a). The website maintains a blog, *Pornhub Insights*, in which it communicates website statistics in the form of infographics. Most of the blog’s posts are off-beat or humorous. For example, “D.C. Takes a Break for Senate Testimony” outlines the dramatic drop in Washington, D. C. web traffic during former FBI director James Comey’s 2017 senate testimony on Donald Trump (Pornhub Insights, 2017a). However, some of the information conveyed on the blog is useful to those trying to understand the kind of pornography people are accessing, in particular the blog post “Pornhub’s 2016 Year in Review” (Pornhub Insights, 2017b). This post outlines, among other things, the most popular search terms and the most viewed categories for 2016 (videos on tube-sites are broken into categories to help users navigate content).

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<sup>3</sup> Websites which mimic YouTube’s (<https://www.youtube.com>) format

According to Pornhub Insights the ten most popular Pornhub search terms for 2016 were: *lesbian*, *step-mom*, *MILF*, *teen*, *step-sister*, *mom*, *cartoon*, *hentai* (Japanese pornographic cartoons), *massage*, and *Japanese*. These statistics are also provided for individual countries. Too many countries are listed for each to be discussed here, rather this review will focus on the U.S., the U.K., and Australia. In the U.S. the most popular search terms were: *step-mom*, *lesbian*, *step-sister*, *MILF*, *cartoon*, *ebony* (Black performers, particularly Black, female performers), *lesbians scissoring* (a sex act in which two women grind their genitals together), *teen*, *Black*, and *mom*. In the U.K. these were: *lesbian*, *MILF*, *step-sister*, *British*, *step-mom*, *lesbian seduces straight*, *lesbians scissoring*, *cartoon*, *massage*, and *squirt* (female ejaculation). The most popular search terms among Australians were: *lesbian*, *MILF*, *Asian*, *massage*, *cartoon*, *step-mom*, *Overwatch* (a videogame released in 2016), *threesome*, *anal*, and *hentai*. While the lists differ by country to a certain degree, lesbians, MILFs, and step relatives (step-mothers and step-sisters) appear to be popular cross-nationally. Users also tended to search for their fellow nationals (e.g., Australians searched for *Australian*, and Britons searched for *British*; this pattern extended across many of the countries listed in the blog post).

Search terms are only one of the ways in which users navigate tube-sites. Users may also go to the website's landing page and then browse through the video selection, choosing content to watch based on titles and thumbnails. Alternatively, users may navigate to a particular content category (e.g., *amateur*, *blonde*, *mature*) and browse videos from there. As such, the most viewed categories also provide insights into what kind of content is being watched. Overall, the ten most viewed categories on Pornhub in 2016 were: *lesbian*, *teen*, *ebony*, *MILF*, *anal*, *big dick*, *hentai*, *big tits*, *threesome*, and *mature*. Among U.S. users the three most viewed categories (only the top three categories are provided) were: *lesbian*, *ebony*, and *teen*. For U.K. users the three most viewed categories were *lesbian*, *teen*, and

*MILF*. This top three was identical for Australian users. Consistent with the findings in relation to the search terms, *lesbian* and *MILF* were extremely popular genres, as was *teen*. Interestingly, *big dick*, *big tits*, *threesome*, and *anal* appear in the list of most viewed categories, but not most popular search terms. This suggests that large penises, large breasts, threesomes, and anal intercourse are extremely prevalent in pornography (which is mostly consistent with the content analytic studies discussed above), even if these terms are not being explicitly searched for by users (it may be that because these body types and sexual practices are so ubiquitous in pornography, users who wish to see them do not need to explicitly search for them).

While the data provided by Pornhub Insights is useful we should not accept it uncritically. Pornhub vice president Corey Price says the goal of Pornhub Insights is to “offer our users an inside perspective on the stats that they contribute to” (cited in J. Marshall, 2013, para. 3). However, others argue the blog is simply a way to encourage favourable media reporting on Pornhub while giving the website an air of legitimacy (J. Marshall, 2013; Oremus, 2014). Accordingly, it would be unlikely that Pornhub Insights would highlight anything that would cast the website, or pornography more generally, in a negative light (e.g., listing *rape* or *violence* among the most popular search term).<sup>4</sup> This being said, the Pornhub Insights data is largely consistent with my independent analysis of popular search terms and viewing categories (see below).

### **Content Descriptors (XNXX and XHamster)**

Mazières, Trachman, Cointet, Coulmont and Prieur (2014) designed a software program to collect metadata from two popular tube-sites: XNXX and XHamster. Their analysis focused on the content tags which accompany individual video clips. For XHamster the 10 most frequently occurring tags were: *amateur*, *men*, *teen*, *hardcore*, *blowjob*, *anal*, *big*

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<sup>4</sup> *Rape* is not a category on Pornhub, although *rough sex* is.

*boobs*, *masturbation*, *matures* (older women), and *cumshots* (external ejaculation). For XNXX the top 10 tags were: *blowjob*, *hardcore*, *amateur*, *teen*, *cumshot*, *anal*, *brunette*, *blonde*, *pussy*, and *sex*. The authors note that different websites use different tag systems (e.g., some websites limit the number of tags associated with a video, while others do not) and thus we should expect some differences between websites. Consistent with the content analyses outlined above, Mazières et al.'s (2014) study highlights the ubiquity of fellatio and external ejaculation in mainstream pornography.

### **Content Descriptors (YouPorn, Pornhub, and RedTube)**

In June, 2013 I conducted a similar (albeit, less technologically sophisticated) analysis to the one conducted by Mazières et al. (2014). In the analysis I assessed the frequency of various content descriptors across the most viewed videos on three large tube-sites: YouPorn, Pornhub, and RedTube. As was mentioned above, Pornhub is the 40<sup>th</sup> largest website on the Internet (as of July, 2017; Alexa, 2017a). YouPorn is ranked 254<sup>th</sup> (Alexa, 2017d) and RedTube is ranked 200<sup>th</sup> (Alexa, 2017b). All three sites appear on the first search page when Google searching the phrase *porn*. The sites allow users to search the most viewed videos across different time periods (e.g., the last week, the last year, all time, etc.). The 50 most viewed videos of all time (as of June, 2013) for each website (150 videos total) were selected for analysis. It was thought that this would provide a representative sample of popular pornographic content. Video titles, view counts, running time, tags (if applicable), and categories (if applicable) were recorded.<sup>5</sup>

View count and running time information is given in Table 3.1. The 10 most frequently occurring content descriptors (tags and categories) across the three sites are presented in Table 3.2.

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<sup>5</sup> At the time of this analysis YouPorn and RedTube provided both tags and categories for their videos, whereas Pornhub provided only categories. If a video had an identical tag and category (e.g., *blonde*), that descriptor was only counted once.

Table 3.1

*Running Time, Number of Views, and Number of Content Descriptors (Tags and Categories) Across the 50 Most Viewed Videos Ever (as of June, 2013) on Three Major Tube-sites*

	YouPorn	Pornhub	RedTube
Running time (mm:ss)			
Range	00:17–54:53	05:00–44:55	00:17–30:54
Mean ( <i>SD</i> )	11:10 (09:04)	19:37 (09:45)	13:45 (08:34)
Views (in nearest million)			
Range	22–67	18–128	14–56
Mean ( <i>SD</i> )	31 (9)	29 (18)	22 (7)
Number of content descriptors	355	235	660

Table 3.2

*Most Common Content Descriptors (Tags and Categories) Across the 50 Most Viewed Videos Ever (as of June, 2013) on Three Major Tube-sites*

	YouPorn	Pornhub	RedTube
1	straight sex	pornstar	blowjob/oral sex
2	brunette	big tits/big boobs	Caucasian
3	big tits/big boobs	teen	vaginal sex
4	shaved	anal	couples
5	blonde	brunette	cumshot
6	blowjob/oral sex	blonde	masturbate/masturbating
7	anal	amateur	shaved
8	name of specific performer	hardcore	blonde
9	teen	babe	pornstar
10	couples	MILF	cunnilingus/licking vagina

As can be seen, *blonde* was the only content descriptor to appear among the 10 most frequent content descriptors of all three sites. *Brunette*, *big tits/big boobs*, *shaved*, *blowjob/oral sex*, *anal*, *teen*, *couples*, and *pornstar* appeared in the top 10 of two sites, with the other content descriptors (*straight sex*, *the name of a specific performer*, *amateur*, *hardcore*, *babe*, *MILF*, *Caucasian*, *vaginal sex*, *cumshot*, *masturbate/masturbating*, and *cunnilingus/licking vagina*) appearing in the top 10 content descriptors of one site only. Nonetheless, it seems reasonable to assume that all of the sex acts, body types, and kinds of sex listed here are common in mainstream pornography.

Given that this analysis was conducted in 2013, I have also recorded the content descriptors of more recent, highly viewed videos: the 10 most viewed videos of the last year



(as of June, 2017) for YouPorn and Pornhub and the 10 most viewed videos of the last month for RedTube (as of June, 2017).<sup>6</sup> The 10 most common content descriptors for each website are displayed in Table 3.3.

Table 3.3

*Most Common Content Descriptors (Tags and Categories) Across the 10 Most Viewed Videos of the Past Year/Month (as of June, 2017) on Three Major Tube-sites*

	YouPorn	Pornhub	RedTube
1	production company name*	point of view*	blowjob/oral sex
2	teen	HD*	HD*
3	HD*	big cock/big dick*	pornstar
4	big butt/big ass*	step-sister*	vaginal sex
5	big tits/big boobs	pornstar	natural tits*
6	cumshot	facial	couples
7	blonde	production company name*	Caucasian
8	romantic/sensual*	hardcore	brunette*
9	anal	doggy style*	shaved
10	college*	cumshot*; brunette; shaved*; small tits/small boobs* <sup>a</sup>	masturbate/masturbating

\*New to list of top content descriptors  
<sup>a</sup>tied for 10<sup>th</sup> place

Content descriptors in the more recent analysis were more diverse. Only *HD* (high definition video), *the name of a production company*, *cumshot*, *pornstar*, *brunette*, and *shaved* appeared on the lists of more than one site. The following content descriptors did not appear in the 2013 analysis of content descriptors: *HD*, *point of view* (a type of pornography which is shot from the point of view of one of the performers), *the name of a production company*, *big butt/big ass*, *romantic/sensual*, *college*, *big cock/big dick*, *step-sister*, *doggy style*, *small tits/small boobs*, and *natural tits*.

**Summary.** In relation to the sex acts depicted in contemporary, mainstream pornography, the analyses of website metadata appear to support the findings of the content analyses discussed above. Fellatio, vaginal sex, and external ejaculation appear to be

<sup>6</sup> Redtube does not have a past year ranking option.

extremely popular in mainstream pornography. Anal sex appears to be common, but is less frequently portrayed than vaginal sex.

The metadata findings also support the content analytic findings into the appearance of performers. As is discussed above, content analyses suggest that most female performers are without pubic hair, and indeed *shaved* was a frequently occurring content descriptor, as was *big tits/big boobs*. Interestingly, in the 2017 analysis of popular content descriptors, *big tits/big boobs* was a frequently occurring content descriptor, but so were *small tits/small boobs* and *natural tits*. Furthermore, while *big cock/big dick* appeared frequently, not one instance of *small cock* or *natural cock* was recorded in my analysis. These findings fit with McKee et al.'s (2008) contention that in mainstream pornography there is less diversity in terms of male performer appearance than female performer appearance.

The metadata findings also provided insight into the popularity of various genres of pornography in a way that the content analytic studies do not. Both the Pornhub Insight data and the independent analysis of content descriptors suggest that MILF pornography, teen pornography, lesbian pornography, and pornography portraying sex between step-relatives are extremely popular genres. The Pornhub Insight data also point to the popularity of cartoon pornography—although not much evidence for this was found in Mazières et al.'s (2014) study or my analysis. The popularity of various genres of pornography is worth considering given that genres of pornography may differ dramatically in terms of their representations of women. As mentioned above, Vannier et al. (2014) found that in MILF pornography women were more typically presented as being sexually agentic, whereas in teen pornography women were more typically presented as being sexually passive. Future analysis of the representation of women in lesbian pornography (a seemingly incredibly popular genre) would be informative.

The metadata analysis did not find evidence that mainstream pornography commonly contains violence against women, as suggested by authors such as Bridges et al. (2010) and Sun et al. (2008). However, analysis of metadata may be too blunt an approach to adequately assess the frequency of the kind of violence these authors describe (acts such as consensual spanking or gagging). My analysis did find that *hardcore* was a frequently occurring content descriptor. Furthermore, *rough sex* was the 12th most common content descriptor for Pornhub in 2013. It is difficult to know what constitutes hardcore pornography or rough sex (as definitions tend to shift over time), but presumably content designated *hardcore* or *rough* would be more likely to contain violence. This being said, my more recent analysis found that the content descriptor *romantic/sensual* occurred about as frequently as *hardcore*.

### Conclusion

This chapter has investigated the content of contemporary, mainstream pornography. This was done by reviewing content analytic studies and analyses of website metadata. The results of this investigation can be summarised as follows: In modern, mainstream pornography fellatio and vaginal sex are ubiquitous. Cunnilingus, solo-masturbation, masturbation of a partner, and anal intercourse are less prevalent but still common. Whether pornography demeans and degrades women is up for debate. On some measures men are more agentic and objectified less often than women, but on other measures this trend is reversed. Men are more likely to orgasm in pornography, but women receive more camera face-time. Many studies have found that male and female performers are equally likely to initiate sex, equally likely to take control of the sexual encounter, and equally likely to be depicted as being of a higher social status. However, when control was not shared equally, men were more likely to be dominating and women were more likely to be submissive (although the reverse is true of MILF pornography). Women in pornography are indiscriminately available for sex and are generally enthusiastic and receptive of all sexual

behaviours and demands. External ejaculation is ubiquitous in contemporary, mainstream pornography. Whether external ejaculation is inherently degrading to women is debated by scholars. The prevalence of violence against women in pornography depends on how violence is defined. Acts such as spanking and gagging appear to be common. These acts are typically directed at women by men and are infrequently met with displeasure. More extreme violence and simulations of rape do not feature heavily in mainstream pornography. Condom use is infrequently portrayed in mainstream pornography. Lesbian pornography, MILF pornography, teen pornography, and pornography portraying sex between step-relatives appear to be extremely popular genres of mainstream pornography. The review would suggest that certain sexual behaviours (e.g., external ejaculation) and situations (e.g., women being indiscriminately available for sex) appear to be frequent enough in mainstream pornography—and distinct enough from real-world sexual behaviour—that one is able to speak of a pornographic style of sex and sexual relations; what I will refer to as, “porn-like” sex.

## **Chapter 4: To What Effect? Theoretical Approaches to Pornography Research**

As mentioned in Chapter 1, this thesis is structured around a question: Who is watching what, and to what effect? The previous two chapters have explored the first half of this question; the prevalence and frequency of men's pornography consumption was explored in Chapter 2, and the content of modern, mainstream pornography was covered in Chapter 3. The thesis now turns to the second half of this question—"To what effect?"—by investigating how exposure to the messages contained in pornography may affect consumers' attitudes and behaviours. The goal of this chapter is to provide the reader with a theoretical understanding of how pornography consumption may shape attitudes and behaviours, before the effects of pornography are empirically investigated in later chapters. Accordingly, this chapter reviews some of the theoretical approaches and models utilised within the pornography effects literature. The discussion is divided into six sections: 1) evolutionary theories, 2) biological theories (which will encompass a discussion of excitation transfer theory and research around the human sexual response cycle), 3) conditioning theories, 4) radical feminist theories, 5) social cognitive theories (which is further broken down into a discussion of social learning theory, sexual script theory, schema research, general models of media effects, and the acquisition, activation, and application model of media sexual socialisation), and 6) the hierarchical confluence model of sexual aggression.

I do not wish to present these theoretical orientations as being in opposition to one another. Indeed, as will be demonstrated, these theoretical approaches are frequently in agreeance on many key points. Rather, the purpose of this chapter is to provide the reader with an overview of some of the theoretical frameworks employed within the pornography effects literature. These theoretical approaches are discussed more explicitly in reference to specific research questions and hypotheses in subsequent chapters.

### Evolutionary Theories

Sexual strategies theory (Buss, 1998; Buss & Schmitt, 1993, 2011) is an evolutionary framework frequently discussed within the pornography effects literature. While most of the theoretical approaches reviewed in this chapter are applied to predicting potential effects of pornography consumption, sexual strategies theory is typically employed to explain the pervasiveness of men's pornography consumption, or the themes contained within pornography (e.g., Hald, Seaman, & Linz, 2014; Malamuth, 1996; Wright & Bae, 2016).

The fundamental principle of sexual strategy theory is that the *minimum* parental investment needed to produce offspring differs markedly between women and men; as Malamuth (1996) puts it, "9 months vs. 9 minutes" (p. 14). It is argued that men's low minimum parental investment has resulted in an evolutionarily driven inclination toward adopting short-term mating strategies under certain circumstances (not to say that men are not also inclined toward long-term mating or that women never employ short-term mating strategies). However, to successfully navigate short-term mating several problems need to be overcome (Buss & Schmitt, 1993). For example, the short-term mater needs to be able to gain access to many potential partners. He also needs to be able to identify which of these potential partners are sexually accessible and fertile, while minimising long-term commitments to partners.

Malamuth (1996) suggests that sexual strategies theory predicts that 1) men will be more inclined to use pornography than women (because of men's greater preference for short-term mating) and, 2) the themes within pornography will closely correspond to the problems associated with short-term mating (i.e., partner access, partner sexual availability, partner fertility, and minimising partner investment). This first prediction is borne out by research. As was outlined in Chapter 1, extant research (e.g., Petersen & Hyde, 2010, 2011) indicates a robust gender gap for pornography use. Malamuth's (1996) second prediction is

also supported by research (for the most part). The content analytic studies discussed in the previous chapter indicate that in mainstream pornography partners are plentiful and typically happily engage in sex with minimal prompting and seemingly no expectations of a long-term relationship. Female performers are also typically young and attractive (both indicators of genetic health and fertility; Buss & Schmitt, 1993).

In ethology, a supernormal stimulus is an exaggerated version of a naturally occurring stimulus, which elicits a stronger behavioural response than the naturally occurring stimulus (Staddon, 1975). For example, geese show a preference for caring for larger eggs. Lorenz (as cited in Ward, 2013) found that if an impossibly large artificial egg (a supernormal stimulus) is placed next to a goose's clutch, the goose will abandon her real eggs to tend to the artificial egg. Pornography could be considered a supernormal stimulus in that it provides exaggerated access to excellent short-term mating opportunities. Indeed, the idea that men may choose pornography over sex with their real-world partners is common within media reporting on pornography's impact on relationships, although these writers do not typically couch their arguments in ethological terminology (for an analysis of media reporting on pornography see Montgomery-Graham, Kohut, Fisher, & Campbell, 2015). Men's use of pornography within the context of romantic relationships is discussed further in Chapter 9.

It could be argued that sexual strategies theory does not fully explain the popularity of MILF pornography (see Chapter 3), a genre which typically features older women. However, Buss and Schmitt (1993) point out that, when adopting a short-term mating strategy, men may drop their standards (in terms of partner fertility) in response to the problem of partner access: "Although men seeking short-term mates, other things being equal, might prefer fertile women in their early to mid 20s, a wide range of ages should be acceptable in short-term mates because of the relaxation of standards" (p. 209). However, this does not explain

the apparent preference for MILF pornography among many viewers, especially given that there is no shortage of content featuring younger women.<sup>1</sup>

Anomalies regarding the popularity of MILF pornography notwithstanding, sexual strategies theory provides a cogent explanation as to the appeal of pornography (for male consumers), as well as some of the themes contained within pornography. It seems likely that part of the attraction of pornography lies in the fact that it allows consumers to engage in vicarious short-term mating (possibly while simultaneously maintaining a real-world, long-term relationship), by providing near-unlimited access to partners (albeit virtual ones) who are attractive, sexually accessible, and unconcerned with long-term commitments.

### **Biological Theories**

#### **Excitation Transfer Theory**

Excitation transfer theory (ETT) is closely associated with Zillmann, although it builds on Schachter and Singer's (1962) theory of emotion,<sup>2</sup> which posits that emotion is the result of both physiological arousal and cognitive appraisal. ETT posits that physiological arousal from one stimulus can amplify emotional reactions to subsequent stimuli, under certain circumstances (Seto, Maric, & Barbaree, 2001; Zillmann, 1971, 1988). For example, if a person is physiologically aroused as a result of intense exercise and is then provoked, the provoked person will feel greater anger towards the provoker than they would otherwise (as a result of the residual physiological arousal). ETT predicts that those who had recently viewed pornography (which is physiologically arousing) would be more likely to act aggressively. However, ETT recognises that the transfer of excitation effect may be context dependent (in the above example, the exerciser may not feel any anger towards the person unless initially provoked). In reference to the use of pornography, it has been suggested that the transfer of

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<sup>1</sup> Interestingly, Pornhub's most searched for pornographic performer of 2016 was Lisa Ann (Pornhub Insights, 2017). Lisa Ann is 45 years old ("Lisa Ann", n.d.).

<sup>2</sup> Which itself is an extension of William James's (1892/2001) position that physiological arousal results in emotion, rather than emotion causing physiological arousal.



physiological excitation into anger is more likely if the pornography being viewed contains context cues supportive of violence (Bauserman, 1996).

Allen, D'Alessio, and Brezgel (1995) meta-analysed 33 laboratory experiments assessing the effect of pornography on aggression, many of which explicitly set out to test ETT. These studies typically involved participants being provoked by a confederate, exposed to pornography, and then given an opportunity to aggress against the confederate (e.g., in the form of delivering an electric shock in Zillmann, 1971, or administering an intense, noxious noise in Zillmann, Hoyt, & Day, 1974). The aforementioned meta-analysis found some support for ETT. In the analysis, participants who had been experimentally exposed to pornography showed more aggressive behaviour towards a provocative confederate compared to participants who had viewed control material.

However, there are two major flaws to concluding that pornography use increases violence against women based on ETT research. First, ETT makes no major distinction between sources of physiological arousal. According to ETT, the consumption of violent movies, exercise, or the use of stimulant drugs, such as caffeine, should be equally as problematic as the use of pornography (Bauserman, 1996). Second, and most importantly, most consumers use pornography for the purposes of masturbation (see Chapter 2), presumably to the point of orgasm. Physiological arousal decreases following orgasm (see below). In this way, ETT could be used to argue that pornography would not increase violence against women, but instead may reduce it.<sup>3</sup> In light of these facts, it has been suggested that ETT is most relevant in cases where violent pornography is used immediately before, or during, a sexual assault (Bauserman, 1996; Hald et al., 2014).

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<sup>3</sup> While it is not explicitly stated, it is assumed that in the laboratory studies meta-analysed by Allen et al. (1995) participants were not instructed to masturbate, thus their physiological arousal as a result of viewing pornography was not curbed.

## The Sexual Response Cycle

Given that the use of pornography is so closely linked to masturbation, the physiological effects of masturbation also need to be considered when investigating the potential effects of pornography. Accordingly, research surrounding the human sexual response cycle is now discussed.

The most widely recognised model of the human sexual response cycle was developed by Masters and Johnson (1966) based on their observation of more than 10,000 sexual cycles (see also Kandeel, Koussa, & Swerdolff, 2001; Lehmiller, 2014; Levin & Riley, 2007). The Masters and Johnson model is divided into four phases: *excitement*, *plateau*, *orgasm*, and *resolution*. The excitement phase is the start of the sexual arousal process. It involves involuntary contractions of the muscles around the genitals and increased genital blood flow, blood pressure, heart rate, and respiration. In the plateau phase, genital blood flow, heart rate, and respiration continue to increase. Accordingly, some authors (e.g., Levin & Riley, 2007) posit that it is unnecessary to separate the excitement and plateau stages, arguing that the plateau stage is just a continuation and intensification of the excitement stage. As the name would suggest, the orgasm phase involves orgasm. In males, orgasm almost always coincides with ejaculation.<sup>4</sup> In the final phase, resolution, the person slowly returns to their pre-aroused state; blood is diverted away from the genitals and respiration and heart rate slows. The resolution stage is associated with subjective feelings of happiness, satisfaction and relaxation (Mah & Binik, 2001). As discussed above, excitation transfer theorists tend to emphasise the first two stages of the sexual response cycle (during which

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<sup>4</sup> Different physiological processes control orgasm and ejaculation (Kandeel et al., 2001; Levin, 2003; Mah & Binik, 2001). Additionally, some authors (e.g., Mah & Binik, 2001) distinguish between the processes of emission (semen being ejected from the testes to urethra) and ejaculation (semen being ejected from the urethra). For the purposes of this thesis, orgasm, emission, and ejaculation will be discussed as if they are one in the same.

physiological activity is increased) and ignore the latter two stages (during which physiological activity peaks and then returns to baseline).

*Post-ejaculation refractory time* (PERT) is the term given to the period following ejaculation during which erections and further ejaculation are inhibited. Based on animal research, PERT is sometimes divided into two periods: *absolute PERT* and *relative PERT* (Levin, 2009). Erections and ejaculation are entirely inhibited during absolute PERT. During relative PERT, arousal is suppressed but still possible in response to novel stimuli (e.g., a new partner). The exact cause of PERT among men is unknown. However, ejaculation has been shown to increase levels of prolactin, a hormone which curbs sex drive (Brody & Krüger, 2006; Krüger, Haake, Hartmann, Schedlowski, & Exton, 2002; Krüger et al., 2003). The hormones oxytocin (Levin, 2003, 2009) and serotonin (Turley & Rowland, 2013) may also contribute to PERT.

It has been claimed that PERT increases with age (Kandeel et al., 2001); although there is little evidence to support this claim (Levin, 2009). Furthermore, little is known about the length of absolute or relative PERT in male humans. However, animal studies indicate that following copulation to exhaustion, male rats will show no interest in females for a period of 24 to 72 hrs (Georgiadis, Kringelbach, & Pfaus, 2012). The possible implications of post-ejaculatory sexual satiety (as a result of masturbation using pornography) are discussed in Chapter 9 in relation to men's sexual satisfaction.

### **Conditioning Theories**

Both classical and operant condition theories have been applied to predicting the effects of pornography consumption. In classical conditioning (also called Pavlovian conditioning) after an unconditioned stimulus (e.g., a bell) is paired with a biologically potent stimulus (e.g., food), the unconditioned stimulus will come to elicit the same response (e.g., salivation) as the biologically potent stimulus (at which point the bell is referred to as the

*conditioned stimulus* and salivation as the *conditioned response*; Pearce & Bouton, 2001).

Applying this logic to pornography, viewing pornography while concurrently masturbating may further reinforce feelings of sexual arousal towards the content being viewed (Hald et al., 2014; Laws & Marshall, 1990; Seto et al., 2001).

There is some experimental evidence to indicate that sexual arousal can be classically conditioned in humans (for an overview see Akins, 2004). For example, Rachman (1966) was able to condition male sexual arousal (as measured by genital blood flow) towards photographs of boots, by pairing images of boots with images of naked women. More recently, Klucken et al. (2009) paired the sight of an abstract shape with images of heterosexual sex. They found that participants reported feelings of sexual arousal at the sight of the shape by the end of the relatively short conditioning procedure.

In operant conditioning a behaviour “operates” on its environment to bring about an effect (Skinner, 1953/2014). If this effect is positive for the organism (*reinforcement*), the organism will tend to repeat the behaviour again in the future. If this effect is negative for the organism (*punishment*), the organism will tend not to repeat the behaviour again in the future. *Shaping* is a process by which a complex behaviour is developed by the reinforcement of successive approximations of the complex behaviour (Peterson, 2004; Skinner, 1953/2014, 1958). Pornography can be thought of as both a positive reinforcer (in the sense that it increases sexual arousal) and a negative reinforcer (in the sense that it may be used to relieve stress or distract oneself from unpleasant emotions; Hald et al., 2014). As such, viewing pornography may increase the likelihood of using pornography again in the future.

Law and Marshall (1990) contend that sexually deviant interests may be conditioned through a shaping-like process. Building on this idea, Seto et al. (2001) argue that, over time, pornography consumers’ sexual proclivities may be shaped in a more deviant direction by viewing progressively more violent or deviant forms of pornography. It is suggested that

consumers may habituate to currently arousing content and thus need to seek out more “extreme” material. The authors argue that this habituation process may even result in viewers acting out the deviant activities they see depicted in this extreme pornography. Hald et al. (2014) refer to this as the “slippery slope” argument (p. 9). Interestingly, in masturbatory reconditioning therapy, this shaping process is used in reverse to treat sexual deviance—although the efficacy of masturbatory reconditioning is far from proven (Laws & Marshall, 1991). Whether high-volume pornography users are more likely to view violent content is briefly discussed in Chapter 10.

### **Radical Feminist Theories**

Feminist scholarship encompasses a broad range of views on pornography (see Hald et al., 2014). As such, it is beyond the scope of this thesis to provide an outline of each feminist school’s perspective on the topic. Rather, I will briefly discuss the arguments made by influential radical feminist scholars such as Dines (see Chapter 1), Dworkin, and MacKinnon.

Dines (2010) claims that pornography has become increasingly integrated into mainstream culture while simultaneously becoming more extreme. She refers to this extreme material as *gonzo* pornography. To Dines, gonzo pornography is totally devoid of any kind of intimacy and instead is characterised by men’s dehumanisation and humiliation of women: “In porn the man makes hate to the woman, as each sex act is designed to deliver the maximum amount of degradation” (pp. xxiv–xxv). Some feminist scholarship has already been discussed in reference to depictions of violence and dehumanisation within pornography (see Chapter 3). As we have seen, these authors claim that a) violence against women is common within mainstream pornography, and b) the prevalence of acts such as external ejaculation, ass-to-mouth, gagging and spanking is indicative of the misogynistic orientation of mainstream pornography.

Dworkin (2000) believes that pornography is misogynistic precisely because it is made by misogynists:

Most of them [pornographers] are small-time pimps or big-time pimps. They sell women: the real flesh-and-blood women in the pictures. They like the excitement of domination; they are greedy for profit; they are sadistic in their exploitation of women; they hate women, and the pornography they make is the distillation of that hate. (pp. 27-28)

MacKinnon (1989) contends that the men who consume pornography do so because it reflects their desire to subjugate and dominate women. It is also argued that the consumption of this degrading content alters sexual preferences in a deviant and degrading direction—so much so that it should be considered a civil rights issue (Dworkin, 2000; Dworkin & MacKinnon, 1993)—and may even result in acts of sexual assault. This sentiment is pithily summated by R. Morgan (1980): “Pornography is the theory—rape is the practice” (p. 139).

While contemporary radical feminist writing also discusses rape, there is a greater focus on the effect of pornography on men’s sexual preferences more generally. For example, Wolf (2012) writes: “‘Ordinary’ is no longer stimulating enough for many men who are heavy porn users. So there is a trend toward anal (often violent anal) penetration and anal climax as the ‘goal’ of the sexual action” (p. 229). She goes on to state that men are “increasingly interested in ‘fucking’ as opposed to ‘making love’” (p. 238). Dines’s (2010) thinking on this topic is similar. Much like Seto et al.’s (2001) conditioning argument (see above), she contends that many consumers habituate to run-of-the-mill pornographic content, forcing them to seek out more extreme material. Dines argues that masturbating while viewing such extreme material shapes men’s sexuality, training men to, at best, be totally indifferent to the feelings of their female sexual partners, and, at worst, find sexual violence against women arousing. While not a radical feminist scholar, Brooks (1995) proposes a

similar idea to that of Dines (2010), in his writing on what he calls the *centerfold syndrome*. Brooks, a researcher and clinical psychologist, developed the centerfold syndrome based on his clinical work. He claims that pornography use can impact men's sense of masculinity in ways that are problematic for their lives and relationships with women (e.g., believing that masculinity is confirmed through sexual conquest; see Chapter 7 for further discussion of the centerfold syndrome). To summarise, anti-pornography, radical feminist writing posits a vicious cycle in which pornography both reflects, and promotes, societal gender non-egalitarianism, specifically the subjugation of women by men.

Some are highly critical of this body of writing for its reliance on anecdotes and cherry-picked case studies over careful scrutiny of systematically derived data (Hubbell, 2009; Weitzer, 2011). For example, in her discussion of the prevalence of gonzo pornography, Dines (2010) thoroughly details the content of a number of degrading, fetish websites. However, she provides no systematic empirical analysis of the content of mainstream pornography or the relative popularity of these degrading, fetish websites. Despite this, she makes emphatic and sweeping claims about what is typical of modern, mainstream pornography.<sup>5</sup> As mentioned in Chapter 3, this literature can also be criticised for making value judgements about what constitutes proper and improper sex. For example, Wolf's (2012) arguments seem to reflect her beliefs that "fucking" is inferior to "making love," that women like "making love" but dislike "fucking," and that anal sex is inherently problematic.

While empirically-minded researchers may question the methodology of these anti-pornography scholars, it is possible to devise empirically testable propositions based on this literature. Seto et al. (2001) have identified three testable claims stemming from the radical feminist literature:

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<sup>5</sup> As outlined in Chapter 3, empirically-driven content analytic work by Shor and Seida (2019) found no evidence for Dines's (2010) central thesis: that mainstream pornography is becoming increasingly violent.

1) The higher the consumption of pornography, the higher the rate of sexual violence against women, at both the aggregate and individual level; 2) pornography negatively alters both male and female perceptions of women; and 3) sexual arousal towards aggression against women occurs in tandem with attitudes supportive of violence against women. (p. 39)

Although not all of these claims are directly tested in this thesis, the relationship between pornography consumption and anti-women attitudes is investigated in Chapter 8. Whether pornography impacts men's perceptions of women is also explored in Chapter 11.

### **Social Cognitive Theories**

The following section canvasses, what can loosely be categorised as, social-cognitive approaches to understanding the effect of the social world on one's attitudes and behaviours. The section starts with a brief outline of two broad theoretical frameworks: social learning theory and sexual script theory. The concept of the schema is then reviewed. Finally, two theories specific to the effect of media on attitudes and behaviours—the *heuristic processing model of cultivation effects* and the *acquisition, activation, and application model of media sexual socialisation*—are outlined.

#### **Social Learning Theory**

While social learning theory (also called social cognitive theory) recognises the importance of direct classical and operant conditioning processes, it argues that much human behaviour is learnt vicariously, through the observation of others' behaviour and its consequences (Bandura, 1971, 1973). That is to say, whether the behaviour of exemplary models is met with reward, punishment, or is simply ignored, will influence whether the observer performs similar behaviours in the future (vicarious reinforcement). Bandura and colleagues demonstrated vicarious learning in the famous Bobo doll experiments (for an overview see Bandura, 1973). These experiments show that children will imitate the



aggressive behaviour of an adult model. It should be noted that this modelling may be direct or symbolic. In the Bobo doll experiments, film models (symbolic modelling) were as effective as live models (direct modelling) in producing aggressive behaviour. In fact, mass media models may be especially influential in that they represent the consequences of modelled behaviours in vivid and unambiguous ways (Bandura, 2001, 2004).

Bandura (1989, 2001; Grusec, 1992) proposes a number of mediating and moderating processes which influence whether a modelled behaviour or attitude is adopted by an observer. He categorises these into attentional processes (i.e., the observer must be attending to the model), retention processes (i.e., the observer must mentally store the model's behaviour in some kind of mental representational system), production processes (i.e., the observer must be able to convert this stored representation into actions similar to that of the model), and motivational processes (i.e., the observer must be motivated to perform the modelled behaviour). Social learning theory makes clear that modelling not only teaches new behaviours, but also weakens inhibitions against previously learned behaviours (Bandura, 1971, 1973).

Applying social learning theory to pornography, the observation of pornographic models may teach consumers new behaviours (e.g., anal sex, the maltreatment of women) or weaken prohibitions against certain sexual practices (e.g., same sex relationships, violent sex, condomless sex), especially if these behaviours are shown to have a positive outcome for the model (e.g., sexual pleasure for oneself or one's partner).

### **Sexual Script Theory**

First proposed in the 1970s by Gagnon and Simon, sexual script theory posits that much human sexual behaviour is guided by "organized cognitive schema[s]" or "scripts" (Gagnon, 1990, p. 6). These sexual scripts are akin to the scripts used by actors to instruct their performance (Simon & Gagnon, 1986). Sexual script theory was developed in response

to the dominant theoretical views of sexuality at the time—psychoanalytic and biological—as a way to demonstrate the social construction of sexuality (Wiederman, 2015). Sexual script theory postulates that scripts operate on three levels: cultural, interpersonal, and intrapsychic (Gagnon, 1990; Simon & Gagnon, 1986). Cultural scripts “lay out the general cast of characters (roles) and the relationships between them” (Wiederman, 2015, p. 8). Interpersonal scripts take from these cultural scripts and then adapt them to individual situations (e.g., Allan’s understanding of how he should behave on a date with Sally). Intrapsychic scripts “represent the particulars of each individual’s unique sexuality” (Wiederman, 2015, p. 8).

Gagnon and Simon’s training in sociology informed the development of sexual script theory. For this reason, their discussion emphasises social constructionism (Simon & Gagnon, 2003). Some authors (Frith & Kitzinger, 2001; Wiederman, 2015) point out that sexual script theory has since been taken in a more cognitive direction by psychologically-orientated researchers. While this may change the language used when describing the theory, Wiederman (2015) believes that sociological and cognitive researchers generally agree on the core principles of sexual script theory: “Sociological script theory and cognitive script theory both entail mental material about how to act, what to expect from others involved in the particular scenario, and how to interpret stimuli and happenings within the delineated episode” (p. 12).

## **Schemas**

Gagnon (1990) describes sexual scripts as examples of “cognitive schema” (p. 6). As such, it is worth briefly reviewing the concept of the *schema*.<sup>6</sup> Fiske and Linville (1980) define schemas (also pluralised as schemata) as “richly-connected network[s] of information relevant to a given concept” (p. 552). That is to say, schemas are frameworks for cognitively

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<sup>6</sup> To avoid confusion, it should be noted that some researchers (e.g., Abelson, 1981) reserve the term “script” to designate schemas relating to specific event sequences (e.g., dental appointments, first dates, or sexual encounters).

organising social information (DiMaggio, 1996). In this sense, schemas are similar to the cognitive “representational systems” described as part of social learning theory.

Not only do schemas provide cognitive structure, they also provide a platform from which to make inferences: “Schemas provide ‘default values,’ i.e., reasonable guesses, where knowledge is incomplete or ambiguous” (Fiske & Linville, 1980, p. 552). These “reasonable guesses” may be emotionally-neutral (e.g., judgements about the percentage of one’s peers who use condoms) or have a substantial affective component (e.g., negative gender stereotypes; Fiske & Linville, 1980). In addition to providing a basis from which to make judgements, schemas also influence the way information is processed (Huesmann, 1998). For example, evidence suggests that people are more likely to perceive information that is congruent with existing schemas and are better able to recall schematically relevant information (DiMaggio, 1996).

For the purposes of this thesis, the terms *script*, *schema* and *cognitive representational system* will be used interchangeably to mean a cognitive framework for organising and categorising social information in a way that can influence social judgements, attitudes, and behaviours. This thesis takes DiMaggio’s (1996) recommendation to “treat the schema as a basic unit of analysis in the study of culture” by focusing on “social patterns of schema acquisition, diffusion, and modification” (p. 269) as of a result of exposure to the messages contained within pornography.

### **The Heuristic Processing Model of Cultivation Effects**

Cultivation effects refer to the degree to which television influences viewers’ social perceptions, particularly those associated with frequently televised themes (M. Morgan & Shanahan, 1997). Cultivation effects<sup>7</sup> have been demonstrated in terms of a broad range of social judgments (for an overview see M. Morgan, Shanahan, & Signorielli, 2009), including

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<sup>7</sup> Typically, the term *cultivation effect* has been used to refer specifically to the influence of television; for this reason, the more general term *media effects* is used below.

perceptions of marital discord (Shrum, 2001) and crime (Holbrook & Hill, 2005). One influential theory of how media can come to influence social judgements is the heuristics processing model of cultivation effects (HPMCE; Shrum & Lee, 2012; Shrum, 2009). As the name would suggest, the HPMCE incorporates the notion of the heuristic. A heuristic is a rule of thumb, or simple strategy, for making social judgements. Heuristics are most likely to be employed when an individual is unable, or unmotivated, to engage in *systematic processing* (i.e., deliberate and careful thinking; Kahneman & Frederick, 2002). In everyday situations, making judgements based on systematic processing is relatively uncommon (Bargh & Chartrand, 1999). This is unsurprising given the sheer volume of social information the average person encounters on any given day.

The HPMCE draws on research around the *availability heuristic*, the basic premise of which is that judgements regarding the frequency of a category, or the probability of an event occurring, are influenced by the ease with which examples of the category or event can be brought to mind (i.e., the cognitive availability of the category or event; Tversky & Kahneman, 1973, 1974; Schwarz et al., 1991). Generally speaking, this is a reasonable strategy, as frequently occurring categories or events are normally recalled more easily than infrequently occurring categories or events. However, the strategy may bias judgements when categories or events are easily recalled for reasons other than occurring frequently (Tversky & Kahneman, 1973, 1974). For example, those who have personally observed a plane crash would likely be able to easily recall an example of a plane crash, and thus may judge plane crashes to occur more frequently. The HPMCE argues that exposure to media-based examples of events may similarly alter the availability of constructs, and thereby alter perceptions of the frequency of these constructs. The HPMCE is built around five interrelated propositions.

**Proposition 1: Media consumption increases construct accessibility.** Proposition 1 recognises that certain constructs are frequently depicted in certain types of media (e.g., crime and violence in police dramas and casual sex in pornography). As such, exposure to certain media should increase the cognitive availability of particular constructs. In support of this, there is evidence to indicate a positive correlation between television viewing and the ease with which participants can generate examples of frequently televised constructs (Busselle & Shrum, 2003; Shrum & O'Guinn, 1993).

**Proposition 2: Accessibility mediates media effects.** Based on the availability heuristic, the second proposition predicts that ease of construct accessibility is the cause of media effects. In support of this, evidence indicates that media effects diminish when ease of construct accessibility is statistically controlled for (Shrum & O'Guinn, 1993).

**Proposition 3: Media examples are not discounted.** The third proposition argues that consumers generally do not discount media-based examples when making judgements. Again, there is empirical evidence in support of this. For example, in Shrum, Wyre, and O'Guinn (1998), participants were either primed to discount media-based examples (prime condition) or given no specific instructions on whether to discount media-based examples (no-prime condition). Media effects were observed among those in the no-prime condition, but not those in the prime condition. This suggests that consumers draw on media-based examples when making judgements (however, this is not necessarily a conscious decision on behalf of the consumer).

**Propositions 4 and 5: Motivation and ability to process information moderates the effect of media on judgements.** The remaining propositions recognise that heuristic processing is more likely to occur when individuals are not motivated (proposition 4) or not able (proposition 5) to think carefully about their judgements (i.e., to engage in systematic processing). In Shrum (2001) participants were instructed to either think carefully about their

judgements (systematic-processing condition), give the first answer that comes to mind (heuristic-processing condition), or were given no instructions on how to answer (control condition). Media effects were observed among the heuristic-processing and control conditions, but not the systematic-processing condition, supporting the fourth model proposition (and suggesting that information is heuristically processed by default). In support of the fifth proposition, media effects have been observed to be more pronounced in telephone surveys (in which respondents are more likely to feel the need to respond quickly) than mail-out surveys (in which there is less pressure to respond quickly; Shrum, 2007).

**Second-order media effects.** Shrum, Lee, Burroughs, and Rindfleisch (2011; see also Shrum & Lee, 2012) maintain that the HPMCE provides a good basis for understanding, what they refer to as, *first-order* media effects (i.e., the media's influence on social judgements relating to frequency and probability). However, they argue that other processes may be at play in determining *second-order* media effects (i.e., the media's influence on social judgements relating to attitudes and values). For example, motivation and processing ability may enhance second-order media effects, as motivation and processing ability help consumers recognise the values being communicated by a piece of media (e.g., materialism, individuality, the acceptability of casual sex). Essentially, Shrum and colleagues are suggesting that systematic processing reduces first-order media effects, but may actually enhance second-order media effects. However, this is somewhat of a false equivalency because Shrum is referring to systematic processing at different points in the cultivation process: when being asked to make judgements in the case of first-order media effects, and when viewing content in the case of second-order media effects. Furthermore, it seems probable that judgements about the frequency or probability of categories or events would influence attitudes more generally. For example, exposure to pornographic media may result in consumers judging unprotected casual sex to occur frequently (a first-order effect). It

seems plausible that this could then influence consumers to think unprotected casual sex is good and adopt a more positive attitude toward engaging in such behaviour (a second-order effect). Similarly, exposure to pornography may result in consumers thinking that women are more likely to engage in “porn-like” sex, and thus adopt a permissive attitude toward pursuing porn-like sex within relationships. One’s perceptions of the frequency or probability of events are likely connected to one’s attitudes towards such events.

Using Shrum’s delineation between first- and second-order media effects, Chapters 8, 9, and 10 deal with second-order media effects (pornography’s influence of sexism and attitudes towards relationships), whereas Chapter 11 deals with first-order media effects (pornography’s influence on judgements about the probability of women engaging in porn-like sex).

### **The Acquisition, Activation, and Application Model**

A frequently utilised theoretical model within the pornography effects literature is Wright’s acquisition, activation, and application model of media sexual socialisation (<sub>3</sub>AM). The <sub>3</sub>AM has been described as an extension of sexual script theory (Wright & Bae, 2016); however, as we will see, it contains elements of cultivation effects theories and thus is discussed at this juncture. The <sub>3</sub>AM also integrates Huesmann’s (1986, 1988, 1998) work on the social learning of aggressive behaviour. The most thorough elucidation of the <sub>3</sub>AM is given in Wright (2011). In this paper, Wright argues that sexual media plays an important role in the creation of schemas (schema acquisition), priming extant schemas (schema activation), and the utilisation of schemas to inform attitudes and behaviours (schema application).

Like Shrum—who distinguishes between first- and second-order media effects—Wright and Bae (2016) posit that scripting effects may be specific or abstract. However,

unlike Shrum, they seem much more willing to argue that specific scripting effects inform or “feed into” abstract scripting effects:

A specific scripting effect takes place when consumers view a particular script (e.g., extramarital sex) that is then applied to a directly related attitudinal judgment or behavioral decision. An abstract scripting effect takes place when consumers infer the underlying behavioral philosophy guiding media models’ actions (e.g., the pleasurable nature of recreational sex) and then apply this generalized script to scenarios beyond those overtly depicted. (pp. 556–557)

Inferring and internalising misogynistic beliefs as a result of viewing pornography in which women are subjected to violence or otherwise degraded, would be an example of an abstract scripting effect.

**Schema acquisition.** Wright (2011) identifies a number of media features and audience factors which may promote schema acquisition following exposure to sexual media. Attention is particularly important. Wright argues that media needs to maintain the attention of the viewer if it is to result in the acquisition of a new schema (this is also a tenet of social learning theory; see above). According to the 3AM, media features which promote audience attention include arousal value (media which arouses the viewer is more likely to be attended to), prevalence (behaviours and themes which are depicted frequently in media are less likely to be missed), and the depiction of behaviours with functional value (i.e., a behaviour’s “ability to create rewards and punishments for the enactor,” Wright, 2011, p. 350).

Wright (2011) suggests that perceived realism is a moderator of the functional value of a modelled behaviour. A modelled behaviour that is perceived to be very unrealistic is unlikely to influence schemas, no matter whether that behaviour results in rewards for the model (Huesmann, 1986). Hald, Malamuth, and Lange (2013) have similarly suggested that the perceived realism of pornography may moderate the relationship between pornography



use and attitudes toward women. The role of perceived realism of pornography in the relationship between pornography consumption and attitudes toward women is discussed further in Chapter 8.

Other audience factors which may promote schema acquisition include motivations for viewing (those who are viewing sexual media specifically for information about sex are more likely to accept the messages presented within sexual media), the compatibility of media scripts with existing schemas (media messages which are congruent with a viewer's existing schemas are more likely to be endorsed and encoded), and audience involvement (the degree to which the viewer is willing and able to think critically about a media message will influence script acquisition). Wright (2011) is equivocal on this final point as he suggests there are arguments that systematic processing may increase schema acquisition, but also arguments to suggest that systematic processing impedes schema acquisition (this is similar to Shrum's position in regard to second-order media effects; see above).

**Schema activation.** Wright (2011) argues that in order for a schema to influence thinking and behaviour it must first be activated in memory: "schema at rest will stay at rest unless sufficiently acted upon by a media message" (p. 354). The 3AM posits that activation of existing schemas as a result of sexual media exposure (i.e., sexual media priming) is heavily influenced by the cognitive accessibility of extant schemas. Wright identifies the following factors as impacting schema accessibility: frequency, recency, and vividness. Recently activated schemas are more likely to be accessible in short-term memory, whereas frequently activated schemas are more likely to be accessible in long-term memory (Huesmann, 1998). Information that is presented in a vivid and entertaining way is more likely to be attended to, encoded, and used to make social judgments (Nisbet & Ross, 1980). Furthermore, vividness may increase the accessibility of related schemas (Shrum, 2009). It is probably reasonable to assume that, as a group, pornography consumers find pornography to

be highly vivid. Wright (2011) also posits that rehearsing the behaviours depicted in sexual media (either cognitively in the form of fantasizing, or behaviourally in the form of masturbation or partnered sex) will further increase schema accessibility. Again, this point is congruent with social learning theory (Bandura, 2001).

**Schema application.** The <sub>3</sub>AM acknowledges that schema activation does not necessarily result in the consumer enacting the modelled behaviour. Building on Huesmann (1998), Wright (2011) recognises that in some situations, certain schemas will be deemed to be inappropriate and discarded. In line with the HPMCE, it is argued that this will be especially likely when individuals are thinking systematically, as opposed to heuristically. Wright (2011) cites time pressure and sexual arousal as two factors which may promote heuristic processing. Interestingly, sexual arousal has been found to mediate the relationship between experimental exposure to pornography and anti-women attitudes (Hald & Malamuth, 2015; Hald, Malamuth, & Lange, 2013). Other factors which may influence schema application include similarity between the viewer and media model, the consequences of the media model's behaviour, and the degree of correspondence between the activated schema and the situation the viewer finds him- or herself in.

The <sub>3</sub>AM predicts that “on average males who view more pornography will have different attitudes and engage in different behaviors than males who view less (or who do not view) pornography” (Wright & Bae, 2016, p. 557). The theory provides a useful and integrative framework for not only understanding how exposure to pornography may shape consumers' attitudes and behaviours, but also (through its emphasis on moderating and mediating variables) the conditions under which pornography's effect on attitudes and behaviours may be minimised. As such, the <sub>3</sub>AM is discussed throughout this thesis.

### **The Hierarchical Confluence Model**

The final major theoretical model to be discussed is the hierarchical confluence model of sexual aggression (HCM; also called the confluence mediational model).<sup>8</sup> The HCM considers the role of individual difference factors in the prediction of sexual aggression (Hald et al. 2014; Malamuth, Addison, & Koss, 2000; Malamuth & Hald, 2017). Two distinct constellations of risk factors are recognised as part of this model: hostile masculinity (HM) and impersonal sex (IS). This division of risk factors was identified in Malamuth, Sockloskie, Koss, and Tanaka (1991) using exploratory structure equation modelling, and empirically confirmed in Malamuth, Linz, Heavey, Barnes, and Acker (1995).

HM is defined as: “a personality profile combining two interrelated components: a) a narcissistic, insecure, defensive, hypersensitive, and hostile-distrustful orientation, particularly towards women, and b) sexual gratification from controlling or dominating women” (Malamuth & Hald, 2017, p. 54). IS is seen as more of an experiential factor, as opposed to a personality profile. It “reflects a developmental history of growing up in a troubled environment that often included violence and/or abuse, an adolescent pattern of antisocial leanings, culminating in a promiscuous ‘detached’ orientation towards sexual relations” (Malamuth & Hald, 2017, p. 54). The HCM suggests that a higher level of either of these constellations is predictive of sexually aggressive behaviour, while the presence of both HM and IS interact to increase the risk of sexual aggression exponentially (rather than in an additive fashion).

Importantly for this discussion, the HCM has been utilised as a framework for examining the impact of pornography on sexually aggressive behaviour (Vega & Malamuth, 2007) and attitudes supportive of sexual aggression (Malamuth, Hald, & Koss, 2012), while controlling for known antecedents of sexual aggression. In both studies the effects of

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<sup>8</sup> I favour *hierarchical confluence model* over *confluence mediational model* as use of the former is more common within the pornography effects literature.

pornography were greater for participants most at risk for sexual aggression as measured by the HCM (i.e., those high in both HM and IS). In this sense, the HCM conceptualises pornography as adding “fuel to the fire” among men at risk for sexual aggression (Hald et al., 2014, p. 8). It should be noted that the idea that pornography is more likely to influence sexual aggression among those high in HM or IS is entirely compatible with Wright’s (2011) notion that media messages are more likely to influence behaviours when media messages are congruent with extant schemas.

The HCM’s fuel-to-the-fire principle has been expanded to understand the influence of the big-five personality factor *agreeableness* on the association between pornography use and anti-women attitudes. Agreeableness has been found to moderate the effect of pornography exposure on men’s attitudes supporting violence against women (Hald & Malamuth, 2015) and hostile sexism (Hald, Malamuth, & Lange, 2013). In both Hald and Malamuth (2015) and Hald, Malamuth, and Lange (2013) an effect was found among men most at risk for holding anti-women attitudes (those low in agreeableness), while no effect was found among men high in agreeableness. These authors suggest that agreeableness acts as a parsimonious index of HM and IS (i.e., those high in agreeableness will likely be low in HM and IS). Malamuth and Hald (2017) acknowledge that agreeableness and HM/IS operate at different levels of specificity in terms of the behaviours they predict. However, they argue that the available evidence suggests “tentatively that elements of the FFM [five-factor model] may in fact be successfully incorporated into the Confluence Model in the prediction of sexually aggressive attitudes or behaviours” (p. 66).

The view that pornography adds fuel to the fire among men high in HM and IS is not without critics. For example, one survey study (Baer, Kohut, & Fisher, 2015) found that men high on HM and IS were more likely to consume violent pornography than men low in these variables. Accordingly, the authors argue that the association between pornography use and

attitudes supportive of violence observed among men high in HM and IS may simply reflect the effects of consumption of violent pornography. Baer et al. (2015) also argue for the importance of sex drive, positing that sex drive could potentially account for both pornography use and sexual aggression among men high in HM and IS.

In this thesis, HCM concepts are used to “understand better for whom adverse effects of pornography are most likely and the situational, cognitive, and emotional mechanisms by which such effects may occur” (Malamuth & Hald, 2017, p. 63). The HCM and the moderating effect of agreeableness are discussed further in Chapters 8, 10, and 11. In line with Baer et al.’s (2015) critique, in Chapters 8 and 10 the role of violent pornography use is also considered.

### **Theoretical Approach of the Current Research**

The remainder of this thesis will focus on presenting the findings of two surveys and an experiment. As part of these investigations, I have chosen to emphasise social cognitive approaches to understanding the effects of pornography. There are two reasons for this. First, social cognitive theories have the most to offer in terms of our understanding of media’s effect on attitudes and behaviours. Second, social cognitive frameworks appear to be the most commonly used approaches within the sexual media socialisation literature (see Hald et al., 2014; Seto et al., 2002; Wright & Bae, 2016). I have made particular use of Wright’s (2011) 3AM, which itself is an extension of social learning theory and cognitively orientated approaches to sexual script theory. This said, I have also sought to be eclectic, drawing on many of the theoretical frameworks discussed in this chapter (e.g., the HCM in relation to the moderating effect of agreeableness, and biological research into the human sexual response cycle in relation to pornography’s effect on romantic relationships and sexual satisfaction). Ardent supporters of particular theoretical frameworks may find this eclectic approach

objectionable, but I feel it better reflects the diversity of the pornography effects literature and the multi-faceted nature of the phenomenon under study.

## **Chapter 5: Survey 1 and 2 Methodology**

As was mentioned in Chapter 1, Chapters 6–10 present the findings of two surveys. The purpose of the current chapter is to give the reader a brief outline of the methodology of these surveys, with a particular focus on details which had to be excluded from manuscript chapters for space. Survey findings are then presented in Chapters 6–10. To remind the reader, Chapters 6 and 7 relate to men's self-perceptions of their pornography use, Chapter 8 examines on pornography use and sexism, Chapter 9 focuses on pornography's impact on partnered men's romantic relationships, and Chapter 10 reports on miscellaneous survey findings. Findings from Survey 1 are presented across Chapters 6–10, whereas Survey 2 results are presented in Chapter 9 only.

Methodological considerations unique to each survey are outlined below.<sup>1</sup> However, before this is done, three design considerations central to both surveys and the experiment are discussed: 1) participant anonymity, 2) defining pornography for participants, and 3) measuring level of pornography use.

### **Anonymity**

As was highlighted in Chapter 2, participants' perceptions of anonymity can impact responses on studies assessing sensitive topics such as sexual behaviour. For this reason, all studies were constructed to emphasise anonymity. For example, the information page of Survey 1 included the following statement:

The purpose of this survey is to gather general information regarding pornography consumption among adult males. We understand that pornography is a delicate topic for some so we want to assure you that your answers will be completely anonymous. Our concern is not with individuals' results, but rather with overall trends in the community. We ask that you endeavour to answer honestly as we want to know your

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<sup>1</sup> The methodology of the experiment is thoroughly outlined in Chapter 11, and thus is not discussed here.

genuine opinions and experiences. You can elect to not answer certain questions if you wish.

Anonymity was also highlighted in the survey outline (e.g., “If you agree to participate in the study you will be invited to complete an anonymous questionnaire”) and informed consent information (e.g., “Any information you give will be kept strictly confidential. You will not be identified in any research publications produced as part of this study”). Anonymity was highlighted in a similar way for Survey 2 and the experiment (see Appendix C for the information pages and informed consent sections of each study).

### **Definition of Pornography**

As some researchers have pointed out (e.g., L. Campbell & Kohut, 2017), the term *pornography* is inconsistently defined within the pornography effects literature. Furthermore, articles sometimes give no information as to how pornography was operationally defined for study participants (see Short, Black, Smith, Wetterneck, & Wells, 2012). In both surveys and the experiment, pornography was explicitly defined for participants using the definition presented in Chapter 1:

Any kind of material that aims to create or enhance sexual feelings or thoughts in the audience and, at the same time contains: (1) explicit depictions of the genitals, and/or (2) clear and explicit depictions of sexual acts such as vaginal intercourse, anal intercourse, oral sex, masturbation etc.

This definition is a variation of the one used by Hald (2006):

Any kind of material aiming at creating or enhancing sexual feelings or thoughts in the recipient and, at the same time 1) containing explicit exposure and/or descriptions of the genitals and (2) clear and explicit sexual acts such as vaginal intercourse, anal intercourse, oral sex, masturbation, bondage, sadomasochism (SM), rape, urine sex, animal sex etc. (p. 579).



Hald's (2006) definition was altered for brevity and because it was thought that participants may find references to bondage, rape, urine sex, and animal sex confronting (which could result in study attrition).

For questions relating to the use of *violent* pornography, such material was defined for participants as "pornography depicting violent acts, e.g., whipping or simulations of forced sex." This definition avoids having participants make value judgements as to the intention of those committing the violent acts. Survey 1 also assessed participants' use of pornography which "humiliates any of the performers involved." The rationale for measuring humiliating pornography is expanded upon in Chapter 8.

### **Measuring Pornography Use**

Having a valid measure of participants' level of pornography use is fundamental to many of the analysis presented in this thesis. Accordingly, the methods used to measure pornography consumption in subsequent chapters are outlined below.

Multiple methods for indexing pornography consumption are utilised within the pornography effects literature (see Short et al., 2012). For example, some studies (e.g., Bridges & Morokof, 2011; Štulhofer, Buško & Schmidt, 2012) make use of frequency-only measures (e.g., "How many times a week do you typically watch pornography?"). Other authors index time spent watching pornography over a given period, such as "in the past week" (e.g., McKee, 2007). Dichotomous measures are also utilised (e.g., "Have you ever viewed pornography?"). However, this is typically only done out of necessity when making use of an existing dataset, such as the General Social Survey (see Chapter 2).

There are disadvantages to all three of these approaches. The first may not accurately index *amount* of pornography exposure, and as a result may not accurately index level of exposure to the messages contained within pornography (which is precisely what shapes attitudes and behaviours according to the social cognitive theories outlined in Chapter 4). For

example, if Albert views 5–15 min of pornography, 3–4 times a week, he would be exposed to less pornography than Bill who views more than 60 min of pornography, 1–2 times a week (15–60 min/week vs. more than 120 min/week). Despite this, Albert would be evaluated as consuming more pornography than Bill if a frequency-only measurement approach was employed. A disadvantage of the “minutes in the past week” approach is that it relies heavily on participants’ memories, and for this reason is likely to result in rough estimates only. Indeed, if a researcher was to ask me how many minutes per week I spend doing a given activity (e.g., watching television or exercising) I would find it difficult to give an accurate response, even if I was provided with a series of time interval options (I would, however, find it easier to answer how frequently I exercise or watch television, and for approximately how long I exercise or watch television at a time; see below). Finally, the dichotomous measurement approach may not adequately capture the linear effect of pornography use on attitudes and behaviours, as it treats all levels of consumption as equal. Furthermore, dichotomous measures such as “Have you ever viewed pornography?” may not be especially meaningful given the high prevalence of men’s pornography use.

In subsequent chapters I typically employ a composite approach to indexing pornography consumption. This is done by z-standardising and averaging two variables: frequency of use in the past six months (measured by a Likert-type item ranging from *1 = less than monthly* to *8 = more than once a day*) and average viewing session length in the past six months (measured by a Likert-type item anchored by *1 = less than 5 min* and *6 = greater than 60 min*).

This composite approach estimates total exposure time without relying too heavily on participants’ memories. Indeed, both items specify consumption in “the last six months” to prompt participants to draw on their more recent experiences (to minimise reliance on long-term memory). Another advantage of this composite approach is that the composite variable

closely approximates a normal distribution, being composed of two z-standardised variables. Other studies have employed similar approaches to measuring pornography use (e.g., Hald, 2006; Hald & Malamuth, 2015; Hald, Malamuth, & Lange, 2013).

The exception to the use of this composite measurement approach was in Chapter 9, in which a frequency-only measurement approach was utilised. There were three reasons for this. First, the analysis aimed to, in parts, replicate existing research, and this research typically utilised frequency-only approaches to measuring pornography use. Second, the analysis focused on men's sexual satisfaction, and extreme scoring on a session length measure could be indicative of a sexual disorder.<sup>2</sup> The presence of a sexual disorder would naturally be associated with poorer sexual satisfaction. Therefore, utilising a measure of pornography use which incorporates session length could artificially (and unpredictably) influence the nature of the association between pornography use and sexual satisfaction. Third, frequency of pornography use was severely non-normally distributed among the Survey 2 sample. Accordingly, this variable had to be trichotomized into a categorical variable with three levels: no pornography use, low use, and high use (this process is further elaborated on in Chapter 9).

## **Survey 1**

### **Design**

Survey 1 was constructed using a mix of existing scales and original items. Survey items were organised thematically into seven parts: relationships (relationship and sexual satisfaction), sexual behaviour (sexual preferences and sexual behaviours engaged in), opinions on sex and gender (sexism and relationship hostility), pornography's influence on others (primarily original items), consumption of pornography (prevalence and frequency of pornography use, media used to access pornography, genres accessed), pornography's

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<sup>2</sup> Viewing pornography, on average, for less than 5 min at a time may indicate issues with premature ejaculation. Viewing pornography, on average, for more than an hour at a time could indicate male orgasmic disorder.

influence on oneself (as measured by the Pornography Consumption Effect Scale [PCES]), and basic demographics and personality variables (including agreeableness). So as not to dissuade participation, the survey was constructed so that participants were well into the study before being presented with the more embarrassing or confronting items (e.g., those relating to one's own pornography use). Information on the specific scales used as part of the survey is not presented here. This information is presented in subsequent chapters.

## **Procedure**

Ethical approval for the study was granted by the Human Research Ethics Committee of James Cook University (JCU; see Appendix D for documentation of ethical approval for all studies). The study was hosted using Survey Gizmo (<https://www.surveygizmo.com>), and was open from October, 2014 to December, 2015.

Both students and community members were recruited for the study. Student participants were recruited from JCU. JCU has a system in which students in select subjects can participate in research in exchange for course credit. University-licensed software was utilised so that students could collect course credit while remaining anonymous.

Community members were recruited via a number of websites (namely, <https://www.facebook.com/psychologyparticipantsresearchers>, <https://www.lehmiller.com>, <https://www.callforparticipants.com>, and <https://www.socialpsychology.org>). Community members were offered a chance to be entered into a prize-draw (for a \$50 gift voucher) in exchange for their participation. Participants were required to give an email address in order to be entered into this prize-draw. To ensure that participants could enter their email address while remaining anonymous, the survey was set up, such that, once participants submitted their responses they would be redirected to a new survey in which they could enter their email address. This guaranteed that participants' responses and email addresses were stored in separate files. This was made clear to participants.

Participation in the survey was limited to adult males. The survey information page specified that both pornography users and non-users were welcome to participate: “The survey is open to males of all sexual orientations and both consumers and non-consumers of pornography.” The second page of the survey, the informed consent page, included three items: “Have you read the above points and consent to participate in the study?”, “What is your gender?”, and “Are you at least 18 years old?” These were the only required questions on the survey. If participants indicated that they were female, under 18, or do not consent to participate, they were thanked and exited using Survey Gizmo’s *page exit logic* function.

To ensure the survey was as brief as possible, Survey Gizmo’s *piping* and *display logic* functions were used to minimise the number of items participants were asked to answer. For example, items relating to satisfaction with one’s romantic relationship were only presented to participants who indicated that were in a romantic relationship.

### **Sample**

Survey Gizmo indicates that the survey was viewed 821 times. Survey Gizmo breaks responses into *completes* (participants who move through the survey to the final page and press the submit button<sup>3</sup>), *partials* (participants who access the survey but do not press the submit button on the final page), and *disqualified* (participants who were disqualified based on specified criteria; in this case being female, under 18, or not consenting to participate). Over 400 (442) responses were categorised as complete, 339 were categorised as partial, and 40 participants were disqualified.

In regard to the 339 partial responses, any participant who accessed the survey was recorded as a partial respondent by the Survey Gizmo software, even if this participant did not respond to any items. As such, 43.4% (339/781) is not a realistic representation of the survey incompleteness rate. Indeed, a significant proportion of participants categorised as

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<sup>3</sup> Complete responses may still have missing data.

partial respondents (123/339 or 36.3%) did not move beyond the informed consent page of the survey. It seems likely that some of these participants accessed the survey with the intention of completing it, saw the estimated completion time (30 to 40 min), or the recommendation to complete the study in a private place (“Due to the personal nature of some questions it is suggested that you complete the survey in a private place”), and exited, possibly with the intention of completing the survey at a more convenient time.

To retain as much data as possible, the 442 completed responses and 339 partial responses (781 total) were all assessed for inclusion in the final sample. Those who did not answer any of the survey items (i.e., those who only looked at the survey but were still recorded as respondents by Survey Gizmo;  $n = 123$ ) were first excluded, leaving 658 responses. A further 172 participants did not answer any of the items relating to their own pornography use (typically these participants had many missing data across the survey, with many of these participants completing the first few pages of the survey and then exiting). As pornography use is the primary variable of interest in all analyses, these participants were also excluded, leaving 486 responses. The 16 participants who responded “no” to the final survey item—“Do you want to submit your responses to be used in the study?”—were also excluded.<sup>4</sup> IP address information and demographic data was then used to screen for possible duplicate responses. Ten possible duplicate cases were detected and deleted, resulting in a final sample of 460 adult men.<sup>5</sup> The demographic characteristics of this final sample is given in subsequent chapters.

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<sup>4</sup> This item was included based on ethical considerations. The item allowed participants who felt uncomfortable with the questions, but continued to answer to be entered into the prize-draw, the opportunity to withdraw their responses.

<sup>5</sup> In subsequent chapters I specify that 470 participants completed the survey and that 10 duplicate responses were then detected and deleted. This is in response to a manuscript reviewer who suggested that degree of duplicate responding should be made clear for readers, given that an incentive was offered in exchange for participation.

### Subsamples Used in Subsequent Chapters

The analyses presented in subsequent chapters are typically limited to segments of this final sample of 460 adult men. For example, the analysis of the association between pornography use and sexism (Chapter 8) was limited to Survey 1 participants who self-identified as heterosexual. This was done because many of the theoretical frameworks outlined in previous chapter suggest that if pornography influences men's attitudes toward women, it does so as a result of the way women are depicted in pornography. Presumably women are totally absent from much of the pornography consumed by gay men.<sup>6</sup>

The way the overall sample was divided for each analysis is presented in Figure 5.1. Further information on this process, subsample demographics, and data screening (e.g., missing data analysis and outlier detection) is provided in subsequent chapters.

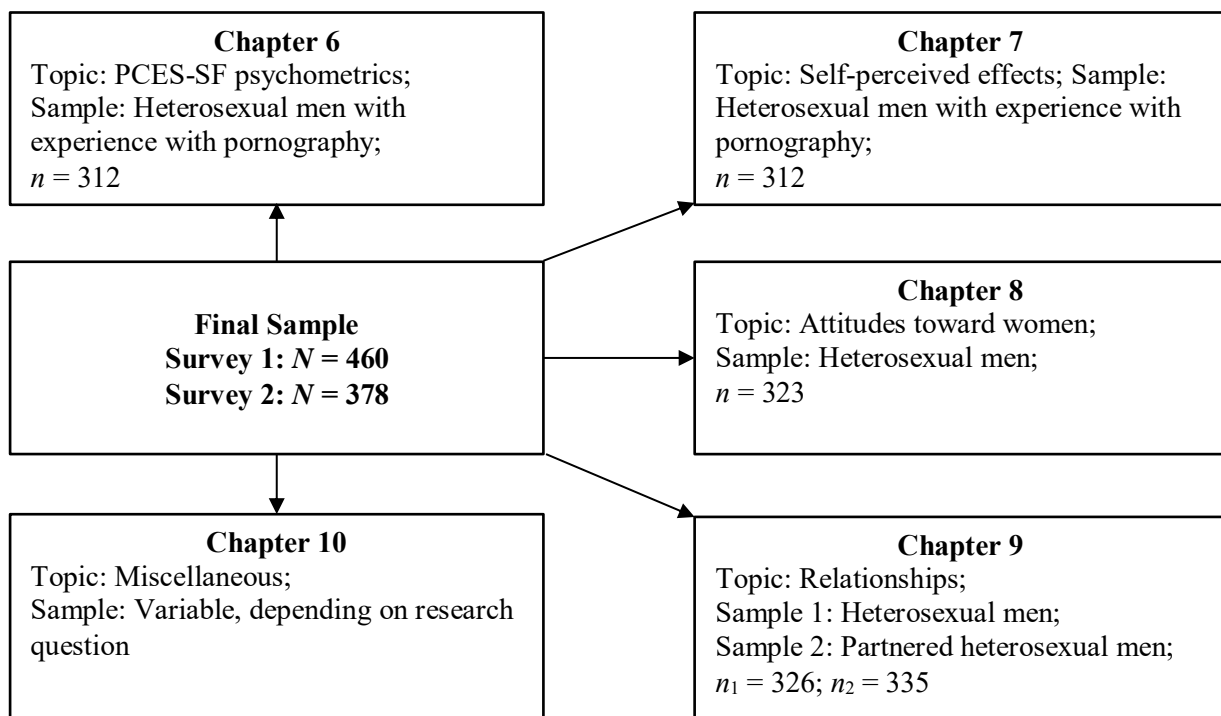


Figure 5.1. Subsamples used in subsequent chapters.

<sup>6</sup> It could be argued that bisexual men would likely consume pornography featuring women. However, due to the small number of self-identified bisexual men in the sample, these participants were similarly excluded from the analysis.

## Survey 2

### Design

Survey 2 was significantly shorter than Survey 1, focusing exclusively on pornography use and relationships. The scales used as part of the survey are described in Chapter 9.

### Procedure

Ethics approval for the study was granted by the Human Research Ethics Committee of JCU. Again, the study was hosted using Survey Gizmo. Data were collected in June and July of 2018.

Participants were recruited using Survey Gizmo's panel service, which collects data via commercial survey panels (such as the Cint panel). Panel members who matched inclusion criteria (adult, Australian men in romantic relationships) were invited to participate. It was made clear that the study was open to both users and non-users of pornography. Although only panel members who matched inclusion criteria were invited to participate, participants were still asked to confirm their gender, age and relationship status on the informed consent page of the study. Those who indicated that they were female, under 18, or not currently in a relationship were thanked and exited from the survey.

Duplicate responses, or responses which were completed too quickly, were iteratively deleted until the specified sample size (400) was achieved. It took almost all participants less than 10 min to complete the survey.

### Sample

Four hundred responses were collected. As is further elaborated in Chapter 9, several responses were deleted for data quality reasons (e.g., impossible or inconsistent responding), leaving 378 participants, 335 of whom self-identified as heterosexual.



## **Chapter 6: Measuring Self-Perceived Effects of Pornography: A Short Form Version of the Pornography Consumption Effects Scale**

### **Author Note**

This chapter is a manuscript version (post-peer-review) of the following publication:  
Miller, D. J., Kidd, G., & Hald, G. M. (2019). Measuring self- perceived effects of  
pornography: A short- form version of the Pornography Consumption Effects Scale.  
*Archives of Sexual Behavior*, 48, 753–761. <https://doi.org/10.1007/s10508-018-1327-z><sup>1</sup>

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<sup>1</sup> Copyright note: This is a post-peer-review, pre-copyedit version of an article published in *Archives of Sexual Behavior*. The final authenticated version is available online at: <https://doi.org/10.1007/s10508-018-1327-z>

### Abstract

The Pornography Consumption Effects Scale (PCES) is a 47-item measure of self-perceived effects of pornography use. While the PCES is frequently used in the pornography research literature, its length may limit its applicability in some research situations. This study investigated if a short form version of the PCES could be created for use with heterosexual men. The study employed an online sample of 312 self-identified heterosexual men.

Confirmatory factor analysis was used to produce a 14-item version of the PCES. This short form PCES (PCES-SF) showed excellent psychometric properties in terms of reliability, concurrent validity with the long form PCES, and discriminant validity with respect to social desirability. Similar to the full length PCES, the PCES-SF generates both an overall positive effect score and an overall negative effect score.

*Keywords:* pornography; sexual explicit media; self-perceived effects; psychometrics; men

## Introduction

Pornography's impact on consumers is a frequently studied and much debated topic (see Hald, Seaman, & Linz, 2014 for an overview). However, only recently have researchers begun to assess the effects of pornography consumption from the perspective of consumers, that is to say, the self-perceived effects of consumers' pornography use. The Pornography Consumption Effects Scale (PCES), developed by Hald and Malamuth (2008) using a sample of 688 Danish young adults, was the first measure to quantitatively assess such self-perceived effects and has since been instrumental to this nascent line of research.

The PCES assesses a variety of positive and negative effects of pornography consumption across 47 items (e.g., "Pornography has improved your knowledge of sex?," "Pornography has adversely affected your views of the opposite gender?," and "Pornography has reduced your sexual activities?"). These scale items were generated and arranged into putative effects dimensions and subscales (see Methodology) on the basis of extant research into the effects of pornography consumption on consumer's lives (e.g., Barak, Fisher, Belfry, & Lashambe, 1999; Frable, Johnson, & Kellman, 1997). In addition to Hald and Malamuth's (2008) sample, the PCES has been utilized in surveys of general samples of pornography users (Wetterneck, Burgess, Short, Smith, & Cervantes, 2012) and experimental studies into the effects of pornography (Prause, Staley, & Fong, 2013; Steele, Staley, Fong, & Prause, 2013).

One practical limitation of the PCES is its length. Longer surveys have been found to be associated with lower response and completion rates and poorer overall data quality (Deutskens, De Ruyter, Wetzels, & Oosterveld, 2004; Galesic & Bosnjak, 2009). Part of minimizing study length involves minimizing the length of the scales used within a study. For this reason the PCES, a 47-item measure, may be of limited utility, especially in research not focussing solely on self-perceived effects of pornography consumption. Accordingly,

shortening the PCES may bolster its applicability, both in pornography research and sexuality research more generally.

In response to this length limitation, Hald, Smolenski, and Rosser (2013) developed a 7-item version of the PCES for use with populations of men who have sex with men (MSM). The 7-item PCES has proved popular, having been used in numerous other surveys of MSM in the short time since its publication (e.g., Hald et al., 2015; Noor, Rosser, & Erickson, 2014; Rosser, Noor, & Iantaffi, 2014) and a slightly modified version of the 7-item PCES has also been used with a general sample of Scandinavian young adults (Kvalem, Træen, Lewin, & Štulhofer, 2014). Further, Mulya and Hald (2014) report on a study into self-perceived effects of pornography consumption among a sample of Indonesian university students utilizing a 14-item version of the PCES. However, no psychometric validation of this version of the PCES has been conducted.

Three core limitations pertain to existing research utilizing shortened versions of the PCES. First, the 7-item PCES has been validated using samples of MSM only. Thus, it is unclear as to whether the psychometric properties of the scale would hold for other groups, such as heterosexual men (who remain the most studied cohort in pornography research). Second, the 7-item PCES provides only a single overall score, with a positive value indicating an overall positive effect and a negative value indicating an overall negative effect. This is unlike the 47-item PCES which generates both an overall positive effect score and an overall negative effect score. Accordingly, the 7-item PCES may be of limited use to researchers who wish to simultaneously assess the degree to which pornography has had both a positive and negative influence on consumers' lives and not only a "net" effect. Third, Mulya and Hald (2014) did not provide systematic psychometric validation of the shortened version of the PCES used in their study. Consequently, it is unknown as to whether their short form scale is a valid and reliable analogue of the original PCES.

The present paper responds to these limitations by utilizing a sample of heterosexual men to investigate if the original 47-item PCES can be significantly reduced in length without loss to its psychometric properties or core measurements of both positive and negative self-perceived effects of pornography consumption.

## Method

### Participants

Data for this study were taken from a larger online survey of the effects of pornography use. A total of 470 men completed the study. The sample was checked for duplicate data by matching IP addresses and demographic information; 10 duplicate cases were detected and deleted. Participants were excluded from the present study if they did not self-identify as heterosexual ( $n = 134$ ), had never viewed pornography ( $n = 10$ ), or did not respond to any of the PCES items ( $n = 4$ ). This resulted in a final sample of 312 heterosexual men who had had previous experience with pornography. Participants' ages ranged from 18 to 73 years ( $M = 27.80$ ,  $SD = 10.71$ ). Students constituted 41.3% ( $n = 129$ ) of the final sample, with the remaining 58.7% ( $n = 183$ ) being community members. A large majority of the sample had viewed pornography in the last six months (94.2 %). Around three quarters (72.4%) of the sample indicated that they had viewed pornography *at least* once per week on average over the last six months. Other characteristics of the final sample are reported in Table 6.1.

Table 6.1

*Characteristics of Final Sample*

Variable	%
Age	
18-24	54.8
25-34	22.1
35-44	11.9
≥45	11.2
Country of residence	
Australia/New Zealand	42.0
Asia	18.9
Europe	7.4
USA	26.9
North America, other	4.2
Other	0.6
Relationship status	
In a relationship, cohabiting	31.7
In a relationship, not cohabiting	22.1
Not in relationship	46.2
Highest level of formal education	
No university study	23.8
Some undergraduate study	32.2
Undergraduate degree	25.1
Some postgraduate study or postgraduate degree	19.0

*Note.*  $N = 312$

**Measures**

**Background variables.** Participants were assessed on a number of demographic variables including sexual orientation (heterosexual; gay; bisexual; other), age (in years), highest level of formal education (no university study; some undergraduate study; undergraduate degree; some postgraduate study or postgraduate degree), country of residence, relationship status (in a relationship and cohabiting; in a relationship but not cohabiting; not in a relationship)<sup>2</sup> and pornography use (ever used pornography; used pornography in the last six months; frequency of use in the last six months). Frequency of pornography use was measured with a Likert-type scale ranging from 1 = *less than monthly*

<sup>2</sup> To facilitate model invariance testing (see below) this variable was later dichotomised to “in a relationship/not in a relationship.”

to 8 = *more than once a day*. Only the measures used in this paper are outlined here. More detailed information on the survey and results relating to self-perceived effects of pornography among the sample are discussed in Miller, Hald, and Kidd (2018).

**Social desirability.** Social desirability was assessed using the Lie Scale of the Abbreviated Form of the Revised Eysenck Personality Questionnaire (Francis, Brown, & Philipchalk, 1992). The scale comprises six dichotomous items (where 0 = *Yes* and 1 = *No*). An example item is: “Have you ever blamed someone for doing something you knew was really your fault?” This 6-item Lie Scale has been shown to be a functional equivalent of longer versions of the Lie Scale (Francis et al., 1992). The Lie Scale was originally developed to detect “faking good” on Eysenckian personality inventories (Francis, Brown, & Philipchalk, 1991), but has since been used as a more general measure of socially desirable responding (Birbenbaum & Montag, 1989; Ferrando & Anguiano-Carrasco, 2009; Stöber, 2001). In the current study the Cronbach’s Alpha of the Lie Scale was .68.

**Self-perceived effects of pornography use.** The long form version of the PCES was included in the survey so that a short form version of the scale could be generated (to avoid confusion, this short form scale is referred to as the PCES-SF from this point). The long form PCES consists of 47 Likert items ranging from 1 = *not at all* to 7 = *to an extremely large extent*. The scale has nine subscales arranged along two effects dimensions: a) the Positive Effects Dimension (PED) and b) the Negative Effects Dimension (NED). The PED has five subscales: Sex Life, Positive (SL-P); Life in General, Positive (LG-P); Attitudes Toward Sex, Positive (ATS-P); Perceptions and Attitudes Towards the Opposite Gender, Positive (PATOG-P); and Sexual Knowledge, Positive (SK-P). The NED has four subscales: Sex Life, Negative (SL-N); Life in General, Negative (LG-N); Attitudes Toward Sex, Negative (ATS-N); and Perceptions and Attitudes Toward the Opposite Gender, Negative (PATOG-N).

There is no negative counterpart to SK-P. PED and NED scores are calculated by averaging responses on the items making up that dimension's subscales.

The scale was originally developed as part of the Pornography Consumption Questionnaire (Hald, 2006) and initially consisted of 64 items. After 17 items were deleted on the basis of redundancy, small factor loadings, poor inter-item correlations, and inappropriate wording the remaining items were factor analyzed (Hald & Malamuth, 2008). This process supported the authors' notion of a PED and NED consisting of five and four factors respectively. Each of the domains assessed by the PCES (sex life; life in general; attitudes toward sex; perceptions and attitudes toward the opposite gender; and sexual knowledge) represent major areas of focus within contemporary pornography effects literature.

## **Procedure**

Participation in the study was open to all adult males. Non-student participants were recruited through websites which host psychological studies (e.g., [callforparticipants.com](http://callforparticipants.com), [lehmilller.com](http://lehmilller.com), [facebook.com/psychologyparticipantsresearchers](https://facebook.com/psychologyparticipantsresearchers), and [socialpsychology.org](http://socialpsychology.org)). Student participants were recruited through James Cook University. Participants were informed of the nature of the study and asked to confirm that they were at least 18 years of age before survey questions were presented. Participation in the survey was anonymous and took roughly 30 minutes. In exchange for their participation, participants were offered the chance to go into a prize-draw for a \$50 gift voucher. Ethical approval to conduct the study was obtained from the Human Research Ethics Committee of James Cook University.

## **Results**

### **Missing Data Analysis**

Before analyses were conducted, PCES items were inspected for missing data. All 47 items were missing fewer than 2.5% of responses and it was deemed that this was unlikely to



bias results (Graham, 2009; Olinsky, Chen, & Harlow, 2003). Expectation-maximization was used to obtain maximum likelihood estimates for missing values.<sup>3</sup>

### **Scale Construction**

The PED and NED were found to have mean inter-item correlations of .48 and .53 respectively. Based on these figures, following Widaman, Little, Preacher and Sawalani (2011), it was determined that both effects dimensions could be reduced by approximately two-thirds without negatively impacting reliability. A two-thirds reduction in both effect dimensions would result in a total scale length of roughly 16 items. It was thought that a scale of this length would be long enough to tap all relevant content domains, while also being easily implementable. Further, as mentioned above, Mulya and Hald (2014) employed a 14-item version of the PCES, indicating the practical utility of a scale of this length.

In order for each of the nine constructs to be given the same weighting in the PCES-SF as in the original 47-item PCES, the number of items selected to be retained on each subscale was proportional to the number of items making up that subscale in the long form PCES. For example, three items were taken from SK-P (which consists of nine items in the long form version of the PCES), whereas only one item was taken from PATOG-N (which consists of only three items in the long form PCES). The items with the highest salient loading on each subscale were retained for the PCES-SF. Widaman et al. (2011) maintain that this approach to short form scale construction better preserves the factor integrity of the original scale compared to other approaches (e.g., retaining the items with the highest factor loadings regardless of subscale).

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<sup>3</sup> The 47 PCES items showed reasonable kurtosis, with the absolute value of kurtosis figures for all variables falling below 7 (kurtosis range = -1.10 to 5.18), as recommended by Fabrigar, Wegener, MacCallum, and Strahan (1999). Additionally, the items also showed reasonable skewness, with the absolute value for skewness falling below the recommended 2 for 40 out of 47 items, with the remaining items sitting only slightly above 2 (skewness range = -0.13 to 2.31). Given the large sample size, items were not transformed to correct for this skew. Across all 47 items, Cook's distances were below 1, suggesting a lack of multivariate outliers (Tabachnick & Fidell, 2013). Cook's distance values were also plotted and visually inspected.

To determine which items best represented each subscale, a hierarchical confirmatory factor analysis model was constructed using Amos version 24. This model is depicted in Figure 6.1. As can be seen, nine first-order factors (SK-P, SL-P, LG-P, PATOG-P, ATS-P, SL-N, LG-N, PATOG-N, and ATS-N) and two second-order factors (PED and NED) were specified. The 47 scale items were treated as reflective indicators of their respective first-order constructs, with these first-order factors in turn being treated as indicators of their second-order factors. The two second-order factors were permitted to covary.

On this basis, 16 items were retained (nine from the PED and seven from the NED). A new model was then constructed with these items acting as reflective indicators of their respective effects dimensions. Error terms for items originating from the same PCES subscale were freed to covary. The factors were also freed to covary (as a small, but significant correlation has been observed between the PED and NED in past research; Hald & Malamuth, 2008). Due to issues of identification, factor variances were fixed to one (unit variance identification; Kline, 2011). This 16-item model showed adequate fit (see Table 6.2), with the exception of the chi-square statistic. Model fit was assessed on the basis of the other fit indices as the chi-square statistic is sensitive to even minor departures from perfect fit (Hoyle, 2011). Inspection of modification indices indicated overlap between two sets of items: items 8 and 33 and 17 and 40. Inspection of the wording of items confirmed possible overlap of content. Thus, items 8 and 40 were dropped in order to minimize redundancy and maximize brevity. This 14-item model (consisting of eight positive and six negative items) also showed adequate fit (see Table 6.2). There was a reduction in the Akaike information criterion (16-item model = 370.78, 14-item model = 255.32) and the Bayes information criterion (16-item model = 375.64, 14-item model = 258.77) across the two models, indicating improvement in fit. Factor loadings between items and their respective factors and

item means are presented in Table 6.3. All factor loadings were significant at the  $p < .001$  level.

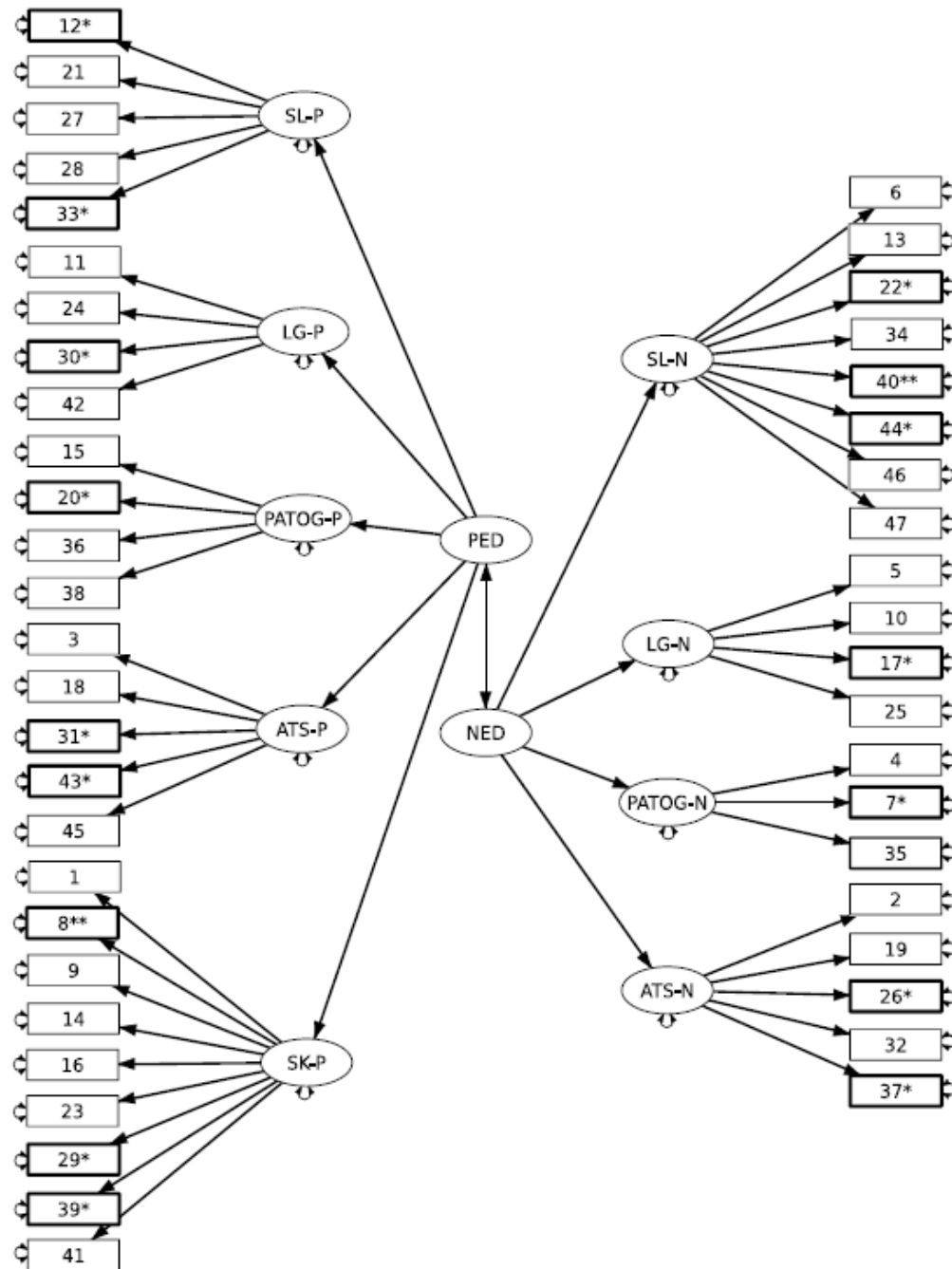


Figure 6.1. Hierarchical confirmatory factor analysis model for the full form PCES. \* indicates item was retained for both the 16-item and 14-item scales; \*\* indicates item was retained for the 16-item scale only; ATS = attitudes toward sex; LG = life in general; NED = negative effects dimension; PATOG = perceptions and attitudes toward the opposite gender; PED = positive effects dimension; SK = sexual knowledge; SL = sex life.

Table 6.2

*Fit Indices for PCES-SF Models*

	$\chi^2 (df)$	CFI	TLI	SRMR	RMSEA [90% CI]	$\Delta\chi^2 (df)$	$\Delta CFI$
16-item, 2 factor model	286.78 (94)***	.946	.931	.070	.081 [.071, .092]		
14-item, 2 factor model	187.32 (71)***	.948	.936	.062	.073 [.060, .085]		
Comparison: in a relationship ( $n = 168$ ), not in a relationship ( $n = 144$ )							
Configural invariance	272.16 (142)***	.955	.942	.086	.054 [.045, .064]		
Constrain factor loadings	280.82 (154)***	.956	.948	.085	.052 [.042, .061]	8.66 (12)	.001
Constrain item intercepts	314.91 (168)***	.949	.945	.086	.053 [.044, .062]	34.09 (14)**	-.007
Constrain item intercepts (excl. items 12 & 33)	294.23 (166)***	.955	.951	.085	.050 [.040, .059]	13.41 (12)	-.001
Constrain factor variances	304.51 (168)***	.953	.949	.087	.051 [.042, .060]	10.28 (2)**	-.002
Constrain factor covariance	305.82 (169)***	.952	.949	.097	.051 [.042, .060]	1.31 (1)	-.001
Comparison: student ( $n = 129$ ), non-student ( $n = 183$ )							
Configural invariance	299.02 (142)***	.946	.931	.076	.060 [.050, .069]		
Constrain factor loadings	316.43 (154)***	.945	.934	.076	.058 [.049, .067]	17.41 (12)	-.001
Constrain item intercepts	364.37 (168)***	.933	.927	.079	.061 [.053, .070]	47.94 (14)***	-.012
Constrain item intercepts (excl. items 7, 26, & 37)	334.68 (165)***	.942	.936	.077	.058 [.049, .066]	18.25 (11)	-.003
Constrain factor variances	341.21 (167)***	.940	.935	.085	.058 [.049, .067]	6.53 (2)*	-.002
Constrain factor covariance	348.28 (168)***	.938	.933	.123	.059 [.050, .068]	7.07 (1)**	-.002

*Note.* CFI = comparative fit index; CI = confidence interval; RMSEA = root mean square error of approximation; SRMR = standardised root mean square residual; TLI = Tucker-Lewis index.

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

Table 6.3

*Item Means and Factor Loadings (Unstandardized and Standardized) between Each Item and its Respective Factor (PED-SF or NED-SF)*

Item content	Original PCES Subscale	<i>M</i>	<i>SD</i>	<i>B</i>	<i>SE</i>	$\beta$	$h^2$
PED-SF							
12. Overall, has improved your sex life?	SL-P	3.10	1.86	1.37	.09	.74	.54
33. Has added something positive to your sex life?	SL-P	3.28	1.83	1.47	.09	.80	.65
30. Has improved your quality of life?	LG-P	2.62	1.73	1.32	.09	.76	.58
20. Has made you more respectful towards the opposite gender?	PATOG-P	2.72	1.80	1.05	.10	.58	.34
31. Has had a positive influence on your attitudes toward sex?	ATS-P	3.10	1.89	1.67	.09	.90	.81
43. Has positively influenced your opinions of sex?	ATS-P	3.04	1.85	1.48	.09	.80	.65
29. Has improved your knowledge of sex?	SK-P	3.90	1.75	1.18	.09	.67	.45
39. Has improved your knowledge of oral sex?	SK-P	3.73	1.81	1.06	.10	.59	.35
NED-SF							
22. Overall, has made your sex life worse?	SL-N	1.61	1.24	0.97	.06	.78	.61
44. Has added something negative to your sex life?	SL-N	1.77	1.38	1.16	.07	.84	.71
17. Has made your life more problematic?	LG-N	1.96	1.52	1.23	.07	.81	.65
7. Has led you to view the opposite gender more stereotypically?	PATOG-N	1.94	1.43	1.04	.06	.73	.54
26. Has had a negative influence on your attitudes toward sex?	ATS-N	1.72	1.28	1.15	.08	.90	.81
37. Has adversely influenced your opinions of sex?	ATS-N	2.00	1.53	1.07	.07	.70	.49

*Note.* All loadings significant at  $p < .001$ . Numbers given in *Item content* refer to the numbering of the original PCES (Hald & Malamuth, 2008).  $h^2$  = item communalities; ATS = attitudes toward sex; LG = life in general; PATOG = perceptions and attitudes toward the opposite gender; SK = sexual knowledge; SL = sex life.

## Invariance Testing

Invariance testing was performed to ascertain whether the final scale was invariant across relationship status subsamples (in a relationship and not in a relationship) and student status subsamples (student and non-student). Due to the study's final sample size, invariance testing was limited to these two variables, both of which break the sample into two groups of roughly equal size. Invariance testing involves sequentially comparing increasingly constrained models. We assessed invariance in the order recommended by multiple authors (Gregorich, 2006; Hirschfeld & von Brachel, 2014; Schmitt & Kuljanin, 2008; Steenkamp & Baumgartner, 1998): configural invariance, invariance of factor loadings (metric or pattern invariance), invariance of item intercepts (scalar invariance), invariance of factor variances,<sup>4</sup> and invariance of factor covariances. The first three steps relate to a scale's measurement invariance, while the latter two relate to structural invariance. Configural invariance was assessed through fit indices, while other forms of invariance were assessed on the basis of a non-significant chi-square difference ( $\Delta\chi^2$ ) test (Byrne, Shavelson, & Muthén, 1989) or a change in the comparative fit index ( $\Delta CFI$ ) of less than  $-.01$  (Cheung & Rensvold, 2002).

Invariance testing is reported in Table 6.2. The scale showed configural and metric invariance across relationship groups. Full scalar invariance was not achieved on the basis of the  $\Delta\chi^2$  test. Item intercept constraints were then relaxed iteratively, starting with the intercepts with the largest between group differences. Partial invariance was established after relaxing intercept constraints for items 12 and 33 (both of which originate from the SL-P subscale). While full scalar invariance was not achieved, Steenkamp and Baumgartner (1998) suggest that meaningful group comparisons can still be made as long as at least two indicators on each factor are invariant. The  $\Delta\chi^2$  test did not indicate invariance of factor variances. However, Little (1997) suggests that changes in fit indices are more informative

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<sup>4</sup> To free the factor variances (both of which were fixed to one in the previous analysis), a loading on each factor had to be fixed to one (unit loading identification; Kline, 2011). These loadings were selected on the basis of whichever were the least variant between groups (Sass, 2011).

than the  $\Delta\chi^2$  test when assessing aspects of structural invariance (such as the invariance of factor variances and covariances). As such the  $\Delta CFI$  was given more weight here. On this basis, both the factor variances and covariance were found to be invariant across relationship groups.

Concerning comparisons between the student and non-student subsamples, again configural and metric invariance were achieved. Partial scalar invariance was achieved after relaxing intercepts constraints for items 7, 26 and 36 (all NED items). The  $\Delta CFI$  indicated invariance of both factor variances and the factor covariance.

### **Reliability, Concurrent Validity, and Discriminant Validity**

The short form versions of the PED and NED (PED-SF and NED-SF) showed good internal consistency, both having Cronbach's alphas of .91. Spearman-Brown coefficients were calculated for the multi-item subscales (SL-P, ATS-P, SK-P, SL-N, and ATS-N). These ranged from .79 to .86 (Eisinga, Grotenhuis, & Pelzer, 2013, suggest that the Spearman-Brown coefficient is a more appropriate measure of reliability than Cronbach's alpha for two-item scales).

Large correlations were observed between the PED and PED-SF,  $r(310) = .97, p < .001$ , and the NED and NED-SF,  $r(310) = .96, p < .001$ , supporting the concurrent validity of the short-form scale.<sup>5</sup> A paired-samples  $t$  test was used to compare mean PED ( $M = 3.24, SD = 1.25$ ) to mean NED ( $M = 1.86, SD = 1.05$ ). This difference was significant,  $t(311) = 17.22, p < .001$ , Cohen's  $d = 1.19$ .<sup>6</sup> Mean PED-SF ( $M = 3.19, SD = 1.42$ ) was then compared to mean NED-SF ( $M = 1.83, SD = 1.16$ ). This difference was also significant and of a similar magnitude (as evidenced by the Cohen's  $d$  statistic),  $t(311) = 16.14, p < .001$ , Cohen's  $d = 1.17$ . Furthermore, the differences between positive and negative dimension scores were of a similar magnitude for the PCES and PCES-SF across all subscales (see Table 6.4).

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<sup>5</sup> Correlations were produced based on aggregated observed variables, rather than latent variables produced through SEM.

<sup>6</sup> See Appendix B for the method used to calculate Cohen's  $d$  throughout this thesis.

Table 6.4

*Mean Score by Subscale for both the Full Length PCES and PCES-SF*

	Positive effect		Negative effect		Paired-samples <i>t</i> test	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i> value	Cohen's <i>d</i>
Full length						
PCES						
SL	3.27	1.52	1.79	1.07	15.3***	1.13
LG	2.54	1.42	2.00	1.35	5.15***	0.39
PATO					7.67***	0.53
G	2.54	1.44	1.84	1.21		
ATS	3.29	1.52	1.87	1.10	14.36***	1.07
SK <sup>a</sup>	3.80	1.39				
PCES-SF						
SL	3.19	1.73	1.70	1.22	12.87***	1.00
LG	2.62	1.73	1.96	1.52	5.10***	0.41
PATOG	2.72	1.80	1.94	1.43	6.59***	0.48
ATS	3.07	1.73	1.86	1.28	10.99***	0.80
SK <sup>a</sup>	3.82	1.67				

*Note.* For all tests  $df = 311$ . SL = sex life; LG = life in general; ATS = attitudes toward sex; PATOG = perceptions and attitudes toward the opposite gender; SK = sexual knowledge.

<sup>a</sup>There is no negative counterpart to the sexual knowledge subscale.

\*\*\* $p < .001$

The PED-SF was not found to correlate with Lie scores,<sup>7</sup>  $r(306) = -.07$ ,  $p = .219$ , however a significant correlation was detected between the NED-SF and Lie scores,  $r(306) = -.12$ ,  $p = .038$ . Given this significant (albeit small) correlation, the instrument's discriminant validity with respect to social desirability was further probed. This was done using Henseler, Ringle, and Sarstedt's (2015) hetero-trait mono-trait (HTMT) ratio method for testing discriminant validity. The HTMT ratio method involves calculating the average cross-scale correlation between scale items (i.e., the mean of the heterotrait-heteromethod correlations) and dividing this average by the square root of the product of the inter-item correlations for each scale (i.e., the geometric mean of the monotrait-heteromethod correlations). A HTMT ratio with an absolute value of less than .85 indicates that the scales being assessed diverge (Henseler et al., 2015; Voorhees, Brady, Calantone, & Ramirez, 2016). This process resulted

<sup>7</sup> Due to a positive skew in the distribution, Lie Scale total was first square root transformed (Tabachnick & Fidell, 2013).



in an HTMT ratio of  $-.11$  for the PED-SF and Lie Scale and  $-.20$  for the NED-SF and Lie Scale. As can be seen, the absolute value of both ratios fell well below the  $.85$  criterion.

A significant, but small, positive correlation was detected between the PED-SF and NED-SF,  $r(310) = .16, p = .005$ . The magnitude of this relationship was greater for the full length PED and NED,  $r(310) = .26, p < .001$ . The HTMT ratio ( $.17$ ) indicated the discriminant validity of the PED-SF and NED-SF.<sup>8</sup>

### Discussion

This study utilized a sample of heterosexual men to produce a 14-item version of the PCES. The PCES-SF showed excellent psychometric performance in terms of reliability and concurrent validity with the long form PCES. Like the long form PCES, the PCES-SF taps the effects of pornography across the content domains of sex life, life in general, attitudes towards sex, perceptions and attitudes towards the opposite gender, and sexual knowledge. The PCES-SF has been constructed to weight these domains in a way similar to the PCES. Invariance testing indicated that the scale measures negative and positive self-perceived effects of pornography similarly among students and non-students and those in a relationship and those not in a relationship, demonstrating the PCES-SF's potential for use with convenience samples of students, community samples, and men in and out of relationships. Analysis indicated that both the PED-SF and NED-SF show discriminant validity in relation to social desirability. This being said, the current study utilized an anonymous, online survey design. Accordingly, in other study designs (e.g., laboratory experiments) social desirability may have a greater impact on scale scores.

The major advantage of the PCES-SF over the PCES is its length. The scale is sufficiently brief to be easily included in studies, even alongside multiple other instruments, without creating issues of participant fatigue or dropout—two problems associated with long

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<sup>8</sup> In Miller et al. (2018) we show that different variables predict PED-SF and NED-SF scores, further indicating their discriminant validity.

surveys (Deutskens et al., 2004; Galesic & Bosnjak, 2009). This has the potential to open new lines of enquiry in sexual media socialization research. For example, by allowing researchers to assess the self-perceived effects of pornography consumption while also assessing the effects of pornography consumption from an external standpoint (e.g., by correlating pornography consumption with a measure of sexism or body image or relationship satisfaction) and then comparing consumers' self-perceptions to the externally measured effects of pornography. Additionally, the PCES-SF's length makes the scale's use in clinical settings possible.

Unlike the 7-item PCES, the PCES-SF produces both a positive effect score and a negative effect score. This is important as the literature (Hald & Malamuth, 2008; Miller, Hald, & Kidd, 2018; Mulya & Hald, 2014) suggests that pornography consumption can simultaneously positively and negatively impact consumers' lives. Researchers who wish to assess both the positive and negative effect of pornography, rather than pornography's net effect, may find the PCES-SF useful for this reason. Researchers who are only interested in the positive or negative effect of pornography may wish to exclude the irrelevant effects dimension to further reduce the number of scale items needed.

Two potential limitations pertain to the PCES-SF. First, most of the original nine PCES subscales are represented in the PCES-SF by one or two items only, which may adversely affect the reliability of the PCES-SF subscales. Therefore, we suggest that researchers who are especially interested in the effects of pornography use on a specific domain (e.g., consumers' sex lives) consider including more items from the full form PCES for that specific subscale than those available in the PCES-SF. Second, the study made use of a non-probability sample of heterosexual men. Accordingly, we cannot know if, or how, the study findings generalize across genders, cultures, and sexual orientations.

Future research may focus on assessing the psychometric performance of the PCES-SF with full-probability samples of men and women of various sexual orientations and cultural backgrounds. Further investigation into the effect of social desirability on scale responding in other study designs would also be useful. These issues aside, the paper offers researchers interested in both the positive and negative self-perceived effects of heterosexual men's pornography consumption a practical and psychometrically-sound alternative to the full form PCES.

### **Acknowledgements**

The third author was supported by the Carlsberg Foundation Distinguished Associate Professor Fellowship, grant CF16-0094, for the duration of 2017–2019.

## **Chapter 7: Self-Perceived Effects of Pornography Consumption Among Heterosexual Men**

### **Author Note**

This chapter is a manuscript version (post-peer-review) of the following publication:

Miller, D. J., Hald, G. M., & Kidd, G. (2018). Self-perceived effects of pornography consumption among heterosexual men. *Psychology of Men & Masculinity*, 19, 469–476.

<http://dx.doi.org/10.1037/men0000112><sup>1</sup>

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### Abstract

Pornography has been identified as playing an increasingly important role in the sexual socialization of men. However, relatively little attention has been paid to men's perceptions of their own pornography consumption. This study investigated self-perceived effects of pornography consumption among an online sample of heterosexual men ( $N = 312$ ). The study employed a short form version of the Pornography Consumption Effects Scale (PCES-SF). The PCES-SF measures both self-perceived positive and negative effects of pornography consumption across the domains of sex life, attitudes toward sex, life in general, perceptions and attitudes toward the opposite gender, and sexual knowledge. Level of pornography use (measured in terms of frequency of use and average length of use) was positively predictive of both self-perceived positive and negative effects of pornography consumption. Those who indicated that they had never been regular users of pornography reported more negative effects than regular users. Older participants reported fewer negative effects than younger participants, even after controlling for level of pornography use. However, the relationship between age and perceived positive effects was non-significant. Religiosity was positively predictive of perceived negative effects, but unrelated to actual level of use. Overall, the sample perceived pornography to have a significantly greater positive than negative effect on their lives. This research is part of a growing body of literature which suggests that most men consider pornography to have a positive impact on their sexual self-schema and lives more generally.

*Keywords:* pornography; sexually explicit media; heterosexual men; self-perceived effects

## Introduction

Two of the most consistent findings within the pornography research literature are the observations that men consume pornography more frequently than women and that consumption of pornography among men is commonplace (see Hald, Seaman, & Linz, 2014). As a result, pornography is seen as playing an increasingly important role in the sex lives and sexual socialization of men (see Wright & Bae, 2016). Pornography consumption has been found to influence men's sexuality across a range of domains, including body image dissatisfaction (Tylka, 2015), permissiveness toward casual sex (Brown & L'Engle, 2009; Peter & Valkenburg, 2010), engagement in condomless sex (Wright, Tokunaga, & Kraus, 2016a), preferences regarding the sexual practices depicted in pornography (E. M. Morgan, 2011), sexual aggression (Wright, Tokunaga, & Kraus, 2016b), and sexual objectification of women (Mikorski & Syzmanski, 2018).

Brooks (1995) uses the term the "centerfold syndrome" to describe the way in which objectifying media portrayals of females (such as pornography) socialize men to endorse certain beliefs about masculinity and thereby influence men's sexual self-schemas (see also Elder, Brooks, & Morrow, 2012). For example, believing that masculinity is confirmed through sexual conquest, that it is natural for men to reduce women to sexual objects, or that recreational, non-relational sex is desirable. Brooks maintains that this distorted view of masculinity then adversely affects men's sex lives and relationships. Although the centerfold syndrome stems from Brooks's clinical and qualitative work, Wright (2012) provides an overview of empirical studies in support of the centerfold syndrome (see also Wright & Tokunaga, 2015).

The deleterious impact of pornography on men's sexual self-schemas and subsequent behavior has received considerable academic attention, which Attwood (2011) describes as the "effects tradition" in pornography research. However, relatively little attention has been

paid to studying the effects of pornography consumption from the perspective of pornography consumers themselves (Attwood, 2011), that is to say, the self-perceived effects of pornography consumption.

Hald and Malamuth (2008) were the first to employ a multifaceted measure of self-perceived effects of pornography use, the Pornography Consumption Effects Scale (PCES). Using a representative sample of 688 Danish young adults, the authors found that consumers perceived pornography to have had a significantly greater positive than negative effect across all the domains of the PCES (sexual knowledge, perceptions and attitudes toward the opposite gender, attitudes toward sex, sex life, and life in general). These findings were partially collaborated by Mulya and Hald (2014) with a sample of 249 Indonesian university students. Consistent with Hald and Malamuth (2008), male participants perceived their pornography consumption to have had a greater positive than negative effect on their sex lives and perceptions and attitudes toward women. However, in contrast to Hald and Malamuth (2008), the men sampled reported that pornography had had a greater negative than positive effect on their attitudes toward sex (Mulya & Hald, 2014). Using a large representative sample of Australian adults, Rissel et al. (2017) found that over 80% of their sample reported that their consumption of pornography had not had a “bad effect on them” (p. 229). In a different study of Australian pornography users, 58% of participants reported that pornography had had a positive effect on their attitudes toward sexuality (McKee, 2007). Only 7% of this sample reported that pornography had negatively influenced their attitudes toward sexuality. Kvaalem, Træen, Lewin, and Štulhofer (2014) measured self-perceived effects of pornography among a sample of Norwegian and Swedish adults and found that participants generally also reported pornography to have an overall positive effect on their lives.

Self-perceived effects of pornography have also been studied among non-exclusively heterosexual men. Using samples of US and Norwegian men who have sex with men (MSM) it was found that over 90% of the men sampled (97% and 93% respectively) felt that pornography had had a positive effect on their enjoyment of sex, sexual knowledge, attitudes toward sex and sexual orientation (Hald, Smolenski, & Rosser, 2013; Hald et al., 2015). These results are supported by a recent qualitative study into pornography use among 35 young men with non-exclusive sexual orientations (McCormack & Wignall, 2017). Here participants described pornography's impact on their lives in largely positive terms, describing viewing pornography as a form of leisure activity and as an effective method for exploring sexual identity. Consequently, the authors argue that researchers need to move beyond the "negative effects paradigm" (p. 3) and also consider potential positive effects of pornography if they wish to have a full understanding of the impact of pornography on men's sexual self-schemas.

The studies outlined above have identified a number of pornography related variables that are predictive of self-perceived effects of pornography consumption, including level of pornography use (Hald & Malamuth, 2008; Hald, Smolenski, & Rosser, 2013; Hald et al., 2015; Mulya & Hald, 2014), perceived realism of pornography (Hald & Malamuth, 2008; Mulya & Hald, 2014), and age at first use of pornography (Hald et al., 2015). A number of demographic variables have also been identified as being predictive of self-perceived effect of pornography consumption, including religion and age (Rissel et al., 2017), and ethnicity and education (Hald, Smolenski, & Rosser, 2013).

As can be seen from the above literature review, only five studies have quantitatively assessed self-perceived effects of pornography consumption among self-reported heterosexual men. One of these studies was conducted in Indonesia, a religious, sexually conservative nation in which pornography is illegal (Mulya & Hald, 2014). Two were



conducted using samples of Scandinavians. Denmark, Sweden and Norway are all sexually liberal nations with a relaxed attitude toward pornography (Denmark was in fact the first nation to legalise the sale of pornography; Hald, 2006). In the two remaining studies single-item measures of self-perceived effects of pornography were employed: “What effects has pornography had on your attitudes towards sexuality?” (McKee, 2007, p. 90) and “You feel using porn has a bad effect on you” (Rissel et al., 2017, p. 229).

The present study seeks to remedy these limitations by assessing self-perceived effects of pornography consumption among a sample of self-reported heterosexual men from a range of nations—primarily Australia, the US and Singapore (all of which would be expected to fall between Indonesia and Scandinavia in terms of acceptance of pornography)—using a validated, multi-item form of the PCES (Miller, Kidd, & Hald, 2019). Further, this study seeks to assess the degree to which pornography related variables (regular pornography consumption, level of pornography consumption, age at first use of pornography, and, if applicable, age at start of regular use) and a range of demographic variables (age, education, country of residence, relationship status, and religiosity) are predictive of both positive and negative self-perceived effects of pornography consumption. This is the first time that the predictive power of many of these variables has been assessed in terms of both positive and negative effects of pornography use (rather than pornography’s overall “net effect”) among a sample of heterosexual men.

The following hypothesis and research questions were tested as part of the study:

- *Hypothesis 1:* Consistent with previous research, the sample will report pornography to have a greater overall positive than negative effect on their lives.
- *Research Question 1:* Which demographic and pornography use variables are predictive of self-perceived positive effects of pornography?

- *Research Question 2:* Which demographic and pornography use variables are predictive of self-perceived negative effects of pornography?

## Method

### Participants

The final sample consisted of 312 self-identified heterosexual men, who had had previous experience with pornography. Participants' ages ranged from 18 to 73 years ( $M = 27.80$ ,  $SD = 10.71$ ). The sample comprised community members (58.7%) and students participating for course credit (41.3%). The majority of the sample originated from three countries: Australia (41.7%), the US (26.9%) and Singapore (17.6%), with the rest coming primarily from Canada, the UK, and other European nations. Demographic characteristics of the sample are presented in Table 7.1.

Table 7.1

*Demographic Characteristics of Final Sample (N = 312)*

Variable	%	<i>M (SD)</i>
Age		27.80 (10.71)
18-24	54.8	
25-34	22.1	
35-44	11.9	
≥45	11.2	
Religiosity <sup>a</sup>		3.25 (2.50)
Country		-
Australia/New Zealand	42.0	
Asia	18.9	
Europe	7.4	
USA	26.9	
North America, other	4.2	
Other	0.6	
Relationship status		-
In relationship, cohabiting	31.7	
In relationship, not cohabiting	22.1	
Not in relationship	46.2	
Highest level of formal education		-
No university study	23.8	
Some undergraduate study	32.2	
Undergraduate degree	25.1	
Some postgraduate study/degree	19.0	

<sup>a</sup>1–9 scale, with higher scores indicating greater agreement with statement “I am religious”

## Measures

**Demographics.** The demographic variables assessed in the survey included age (in years), country of residence, highest level of formal education (no university study; some undergraduate study; undergraduate degree; some postgraduate study or postgraduate degree), relationship status (in a relationship and cohabiting; in a relationship but not cohabiting; not in a relationship) and sexual orientation (heterosexual; gay; bisexual; other). Religiosity was measured with a single Likert-type item, “I am religious,” with response options ranging from 1 = *extremely inaccurate* to 9 = *extremely accurate*.

**Pornography use.** The prevalence of pornography consumption was assessed with three yes or no items: “Have you ever watched pornography?,” “Have you watched pornography in the last six months?,” and “At any point have you been a regular viewer of pornography?” Regular viewing was defined for participants as “Viewing pornography at least once per month, over a six-month period.”

Frequency of pornography use over the last six months was measured with a Likert-type item ranging from 1 = *less than monthly* to 8 = *more than once a day*. Average pornography viewing session length was assessed via a Likert-type item anchored by 1 = *less than 5 minutes* and 6 = *greater than 60 minutes*. An index of level of pornography consumption over the last six months was created by z-standardizing and then averaging these two items. Participants were also asked about the age at which they first viewed pornography (including accidental exposure) and the age at which they first started to regularly view pornography.

**Self-perceived effects of pornography consumption.** A validated short form version of Hald and Malamuth’s (2008) PCES (PCES-SF; Miller, Kidd, & Hald, 2019) was used to measure the self-perceived effects of pornography consumption. The PCES-SF consists of 14 Likert-type items (see Appendix E for items). All items use a seven-point scale (1 = *not at all*,

2 = to a very small extent, 3 = to a small extent, 4 = to a moderate extent, 5 = to a large extent, 6 = to a very large extent, and 7 = to an extremely large extent).

Items are arranged along a positive effect dimension (PED) and a negative effect dimension (NED). Like the PCES, the PCES-SF measures self-perceived effects of pornography use across the content domains of sex life (two positive and two negative items), attitudes toward sex (two positive and two negative items), life in general (one positive and one negative item), perceptions and attitudes toward the opposite gender (one positive and one negative item), and sexual knowledge (two positive items). In the current study, both the PED and NED had Cronbach alpha coefficients of .91. Spearman-Brown coefficients for the two item subscales ranged from .79 to .86 (for two-item scales, the Spearman-Brown coefficient may be a more appropriate measure of reliability than Cronbach's alpha; Eisinga, Grotenhuis, & Pelzer, 2013).

## Procedure

Data for this study were taken from a larger online survey into the effects of pornography use. Participation in the study was limited to adult males. For the purposes of this paper, the final sample was limited to those who self-identified as heterosexual and had previously viewed pornography (as PCES-SF items would not be applicable to those who had never viewed pornography).<sup>2</sup> Students from James Cook University were recruited in exchange for course credit. Other participants were offered the chance to go into a prize-draw (for a \$50 gift voucher) in exchange for their participation. As an incentive was offered, data were checked for duplicate responses. Community participants were recruited through websites which host psychological studies (e.g., [callforparticipants.com](http://callforparticipants.com), [lehmilller.com](http://lehmilller.com), [socialpsychology.org](http://socialpsychology.org), [facebook.com/psychologyparticipantsresearchers](https://facebook.com/psychologyparticipantsresearchers)). Participation in the

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<sup>2</sup> 322 self-identified heterosexual men completed the survey. Ten (3.1%) participants were excluded on the basis of never having viewed pornography, leaving a final *N* of 312. An "ever viewed pornography" prevalence rate of greater than 90% for men is consistent with past research (e.g., Kvaalem et al., 2014; Morgan, 2011; Sun, Miezan, Lee, & Shim, 2014; Træen & Daneback, 2013).

study was anonymous and took approximately 30 minutes. Ethical approval to conduct the study was obtained from the Human Research Ethics Committee of James Cook University.

## **Results**

### **Pornography Consumption Among Sample**

Nearly the entire sample (94.2 %) had viewed pornography in the last six months. Additionally, 82.4% indicated that they currently were regular users of pornography, or had been at some point. Median response for frequency of use over the last six months was 3–4 times per week. Median response for average session length was 15–30 minutes. Average age at first use was 12.91 years ( $SD = 2.80$ ), and average age at start of regular use was 16.69 years ( $SD = 3.99$ ).

### **Hypothesis 1**

The sample had a mean positive effect dimension (PED) score of 3.19 ( $SD = 1.42$ ), indicating a small to moderate positive effect based on scale response options, and a mean negative effect dimension (NED) score of 1.83 ( $SD = 1.33$ ), indicating no negative effect to a very small negative effect. A paired samples  $t$  test was used to compare PED scores to NED scores. A significant and large difference was detected,  $t(311) = 14.23$ ,  $p < .001$ , Cohens's  $d = 0.99$ , indicating that participants perceived that pornography consumption had a significantly greater positive than negative effect on their lives. This finding was consistent across all of the domains measured by the PCES-SF (see Table 7.2). Hypothesis 1 was therefore supported.

Table 7.2

*Mean (SD) Score by PCES-SF Subscale*

Subscale	Positive effect	Negative effect	Paired-samples <i>t</i> test
SL	3.19 (1.73)	1.70 (1.22)	$t(311) = 12.87^{***}$ , $d = 1.00$
LG	2.62 (1.73)	1.96 (1.52)	$t(311) = 5.10^{***}$ , $d = 0.41$
ATS	3.07 (1.73)	1.86 (1.28)	$t(311) = 10.99^{***}$ , $d = 0.80$
PATOG	2.72 (1.80)	1.94 (1.43)	$t(311) = 6.59^{***}$ , $d = 0.48$
SK	3.82 (1.67) <sup>a</sup>		

*Note.* SL = sex life; LG = life in general; ATS = attitudes toward sex; PATOG = perception of and attitudes toward the opposite gender; SK = sexual knowledge.

<sup>a</sup>There is no negative counterpart to the sexual knowledge subscale

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

## Research Questions 1 and 2

To investigate Research Questions 1 and 2, correlation analyses were performed on continuous study variables (i.e., PED, NED, age, age at first use of pornography, age at start of regular use of pornography, level of pornography use, and religiosity). Furthermore, PED and NED scores were also compared for categorical study variables (i.e., country of residence, relationship status, highest level of formal education, and whether the individual had ever been a regular user of pornography) using ANOVAs and independent-samples *t* tests.

Correlation coefficients are presented in Table 7.3. As can be seen, a significant positive relationship was detected between PED and NED. PED was also positively associated with pornography use, but negatively related to age at first use of pornography. NED had a positive association with religiosity and a negative association with age.

Table 7.3

*Pearson's Correlations between Continuous Study Variables*

	2	3	4	5	6	7
1. Positive effect dimension	.16**	.07	-.13*	.01	.31***	.02
2. Negative effect dimension		-.22***	.02	-.12	.08	.31***
3. Age			.02	.61***	.16**	.06
4. Age first use				.41***	-.18**	.02
5. Age at start of regular use					-.05	.21**
6. Pornography use						-.03
7. Religiosity						

*Note.*  $df = 243-310$ \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

Table 7.4

*Comparisons of Mean Positive and Negative Effect Dimension Scores for Groups Based on Categorical Study Variables*

Variable	Positive effect		Negative effect	
	<i>M (SD)</i>	<i>Test</i>	<i>M (SD)</i>	<i>Test</i>
Country		$F(4, 305) = 1.18, \eta^2 = .03$		$F(4, 305) = 2.27, \eta^2 = .03$
Australia/New Zealand	3.05 (1.42)		1.91 (1.26)	
Asia	3.28 (1.38)		2.11 (1.37)	
Europe	3.71 (1.43)		1.65 (0.89)	
USA	3.18 (1.40)		1.65 (0.94)	
North America, other	3.34 (1.60)		1.35 (0.47)	
Other <sup>a</sup>	-		-	
Relationship status		$F(2, 307) = 0.75, \eta^2 = .01$		$F(2, 307) = 3.35^*, \eta^2 = .02$
In relationship, cohabiting	3.28 (1.45)		1.59 (0.93)	
In relationship, not cohabiting	3.26 (1.32)		2.00 (1.11)	
Not in relationship	3.07 (1.44)		1.92 (1.31)	
Highest level of formal education		$F(3, 307) = 0.79, \eta^2 < .01$		$F(3, 307) = 0.62, \eta^2 < .01$
No university study	2.97 (1.29)		1.90 (1.10)	
Some undergraduate study	3.29 (1.43)		1.84 (1.18)	
Undergraduate degree	3.24 (1.46)		1.88 (1.26)	
Some postgraduate study/degree	3.18 (1.42)		1.65 (1.10)	
Ever been a regular user?		$t(310) = 1.71, d = 0.25$		$t(65.39) = -4.12^{***}, d = -0.87^b$
Yes	3.24 (1.39)		1.61 (0.97)	
No	2.89 (1.50)		2.55 (1.48)	

<sup>a</sup>Not tested due to small *n*; <sup>b</sup>Assumption of homogeneity of variances violated thus Welch's *t* test was used in place of Student's *t* test

\**p* < .05; \*\**p* < .01; \*\*\**p* < .001



Table 7.4 reports the results of the tests comparing NED and PED by categorical study variables. No significant differences in PED scores were detected for any of the categorical variables assessed. Those who indicated that they had never been regular viewers of pornography reported significantly greater NED scores than those who had. Furthermore, the omnibus  $F$  test comparing NED scores by relationship groups (in relationship, cohabiting; in relationship, not cohabiting; and not in relationship) was also significant. However, Bonferroni corrected pairwise comparisons did not reveal any significant differences between relationship groups. It should be noted that the effect size associated with the omnibus test here was small.

Multiple regression analysis was then conducted to assess whether the three variables that significantly correlated with PED in the initial analysis (NED, age at first use of pornography, and level of pornography use) would continue to have a significant association with PED after taking into account these predictors' shared variance. In order to do this, the three predictor variables were simultaneously entered into the regression model. Level of pornography use was the only predictor that was found to make a statistically significant, unique contribution to the model. In total the model accounted for 10% of the variance in self-perceived positive effects ( $R = .32$ , adjusted  $R^2 = .09$ ,  $p < .001$ ). Regression weights are reported in Table 7.5.

Table 7.5

*Multiple Regression Analysis on Self-Perceived Positive and Negative Effects of Pornography Consumption*

Variable	<i>B</i>	<i>SE</i>	$\beta$	<i>R</i> <sup>2</sup>
Positive Effect				
Negative effect scores	0.10	0.07	.08	.10
Age first use	−0.05	0.03	−.10	
Pornography use	0.48***	0.10	.27	
Negative Effect				
Positive effect scores	0.08	0.05	.09	.21
Age	−0.02***	0.01	−.21	
Religiosity	0.13***	0.03	.28	
Ever been a regular user? <sup>a</sup>	−0.70***	0.19	−.23	
Pornography use	0.25**	0.07	.17	

<sup>a</sup>Response option “No” used as the reference value

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

Following the same logic underpinning the above multiple regression analysis, PED, age, religiosity, and regular pornography use were entered into a regression model predicting NED. Level of pornography use (which was not found to significantly correlate with NED in the correlational analyses) was also entered into the model as it was thought that the positive relationship between PED and NED observed in the correlational analyses may be the result of shared variance between PED, NED and level of pornography use. As in the previous regression analysis, the five predictors were entered into the model simultaneously. Age, religiosity, regular pornography use, and level of pornography use were all found to make a statistically significant unique contribution to the model. PED was not statistically significant in the model. In total the model accounted for 21% of the variance in the self-perceived negative effects of pornography use ( $R = .46$ , adjusted  $R^2 = .19$ ,  $p < .001$ ; see Table 7.5).

### Discussion

As expected (see Hypothesis 1), the sample reported that pornography had had a greater positive than negative impact on their lives. This finding is consistent with existing research into self-perceived effects of pornography use among heterosexual men (Hald & Malamuth, 2008; Kvaalem et al., 2014; Mulya & Hald, 2014; Rissel et al., 2017) and MSM

(Hald, Smolenski, & Rosser, 2013; Hald et al., 2015). Conceivably, this finding could be explained by cognitive dissonance theory (Festinger, 1957), whereby participants may underreport negative effects of their pornography consumption in an attempt to reduce dissonance between their beliefs (e.g., believing that pornography consumption adversely impacts one's life) and behaviors (e.g., frequently using pornography). Nonetheless, it is also possible—and perhaps even likely given the cross-study consistency of this finding—that participants' reports are accurate and that most men really do believe that pornography has a greater positive than negative impact on the lives.

Past qualitative research can provide clues as to the ways in which pornography may positively influence men's sexual self-schemas. As discussed above, in the in-depth interviews conducted by McCormack and Wignall (2017) participants frequently described the consumption of pornography as a pleasurable recreational activity and an important source of knowledge about sexual desires and identity (although it should be acknowledged that unlike the current study, McCormack and Wignall targeted young men with non-exclusive sexual orientations). McKee (2007) included open-ended questions assessing the self-perceived effect of pornography in his survey of Australian pornography consumers. In this study participants frequently reported that pornography made them feel less repressed, more open-minded, and more tolerant about sex. Participants also frequently reported that they found pornography to be pleasurable and educational. In support of this, in the current study the highest mean subscale scores were observed for Sexual Knowledge (Positive), Sex Life (Positive), and Attitudes Toward Sex (Positive).

It should be noted that the findings of the study, and other similar studies, regarding the self-perceived positive effect of pornography do not necessarily invalidate any of the existing research into pornography's impact on men's sexual self-schemas and behaviors. For example, it may be that pornography impacts men's desire to engage in recreational sex or

assert their masculinity through sexual conquest in a way consistent with Brooks's (1995) centerfold syndrome. It may just be the case that most men do not find such desires negative or upsetting (even if such desires still have a negative impact on the lives of women), or if they do, this negative effect is outweighed by pornography's positive effect on their sex lives. Indeed, mean NED subscale scores all fell close to two ("a very small negative effect") indicating that many men still perceive pornography to have some negative effect on them.

It is noteworthy that participants did not report more negative effects in regard to pornography's impact on their sex lives given a recent meta-analysis of studies assessing the association between pornography consumption and sexual and relationship satisfaction (Wright, Tokunaga, Kraus, & Klann, 2017). This meta-analysis found small but significant overall negative associations between pornography consumption and both sexual and relationship satisfaction. Kohut, Fisher, and Campbell (2017) have however heavily criticized much of the empirical literature used in this meta-analysis for its harm-focused orientation and assumption of direction of causality (see also L. Campbell & Kohut, 2017). Accordingly, these authors conducted their own qualitative investigation into pornography's impact on men and women's relationships. They found that participants reported positive effects much more frequently than negative effects. Interestingly, the most commonly reported negative effect was that pornography created unrealistic expectations of sex, in relation to what is expected of both females (e.g., willingness to engage in, and enjoyment of, certain sexual practices) and males (e.g., muscularity, penis size, erection quality, sexual stamina). This and related research (e.g., Tylka, 2016) suggests that pornography can impact men's (or at least some men's) masculine ideals and sexual relationship expectations, creating an incongruence between what is expected of sexual relationships and what actually occurs within these relationships. For some men, this may adversely impact relationship satisfaction.

The hierarchical confluence model (HCM) of sexual aggression posits that the effect of pornography on sexual aggression is stronger among those who are already high on risk factors for sexual aggression (e.g., hostile masculinity, narcissism) and less pronounced, or non-existent, among those who are low on such risk factors (see Hald et al., 2014; Kingston, Malamuth, Fedoroff, & Marshall, 2009). Empirical evidence supports the HCM in relation to pornography's impact on sexual aggression (Hald & Malamuth, 2015; Malamuth, Hald, & Koss, 2013). Furthermore, the HCM has been successfully extended in regard to pornography's impact on sexism more generally (Hald, Malamuth, & Lange, 2013). The basic premise of the HCM could be further extended to understand pornography's effect on men's relational and sexual self-schemas. That is to say, pornography may have a more pronounced effect on the masculine ideals (and by extension relationship satisfaction) of men who are already at risk for having unrealistic expectations of sexual relationships (e.g., teenagers with little real-world sexual experience). Interestingly, and in line with this theory, in the current study older participants reported fewer self-perceived negative effects than younger participants, even after controlling for level of pornography use (this finding is mirrored in Rissel et al., 2016). By virtue of having more real-world experience with sexual relationships, older men may be better able to recognize that pornography does not provide an accurate picture of sexual relationships. Thus, pornography may be less likely to have a direct influence on older men's masculine ideals and by extension less likely to negatively impact the lives of older men.

Consistent with the idea that pornography can simultaneously negatively and positively impacts men's lives, the results of the regression analysis indicated that increased pornography use was associated with more overall positive effects *and* more overall negative effects. These findings underpin the importance of researchers considering both pornography's positive and negative impact and highlight the need for scales which enable

the simultaneous measurement of positive and negative effects, in contrast to the single-item, net-effect measures employed by some past studies (e.g., McKee, 2007; Rissel et al. 2016).

Interestingly, having never been a regular user of pornography was also associated with more perceived negative effects. This finding seems somewhat at odds with the observed positive relationship between level of pornography use and perceived negative effects. However, it may simply reflect the possibility that there is a segment of the population who feel that pornography adversely impacts them and thus do not use it frequently.

PED and NED scores were not found to differ by country. Furthermore, the results of the current study largely mirror those of previous studies conducted in sexually liberal Scandinavian (Hald & Malamuth, 2008; Kvaalem et al., 2014) and sexually conservative Indonesia (Mulya & Hald, 2014), suggesting that level of national acceptance of pornography does not have a major impact on self-perceived effects of pornography.

Finally, religious participants did not report using pornography any more or less frequently than their non-religious counterparts. However, they were more likely to feel that their pornography use has a negative impact on their lives. These findings are consistent with those of a recent study of US students (Grubbs, Exline, Pargament, Hook, & Carlisle, 2015) which found religiosity to be predictive of perceived addiction to pornography, but unrelated to level of pornography use. This relationship may be the result of religious participants' feelings of guilt for acting at odds with their religious or cultural values by consuming pornography. However, this cannot be determined with certainty as the survey did not contain any items directly measuring pornography-related religious guilt. Similarly, the finding may reflect the fact that pornography use has shaped these participants' sense of masculinity in a way that is incompatible with the tenets of their religion (e.g., believing that masculinity is confirmed through sexual conquest with multiple partners).

The study has a number of limitations. First, the study utilised a non-probability sample. Therefore, we should be somewhat cautious when generalizing study findings to the wider population. This being said, the findings of the current study are congruent with existing research based on large representative samples (Hald & Malamuth, 2008; Rissel et al., 2016), suggesting that the findings are not simply the result of sampling biases. Finally, as discussed above, the study relies on self-report measures. Thus, cognitive biases (such as the tendency to reduce cognitive dissonance) may have shaded results. These issues aside, it does appear that pornography has a significant impact (both positive and negative) on men's sexual self-schemas and lives more generally, as judged by male consumers themselves.

## **Chapter 8: Pornography Use, Old-Fashioned Sexism, Modern Sexism and Relationship Hostility among Heterosexual Men**

### *Author Note*

This chapter is a manuscript version of an article to be submitted for publication. The findings of this chapter have been presented previously: Miller, D. J. (2017, April).

*Pornography use and sexism among heterosexual men.* Paper presented at the Society of Australasian Social Psychologists Conference, Melbourne, Australia.



### Abstract

The idea that pornography promotes sexism is a commonly purported one. This study employed an online sample of heterosexual men ( $N = 323$ ) to investigate the relationship between pornography use (in terms of both overall level of pornography use and use of violent and/or humiliating pornography) and old-fashioned sexism, modern sexism, and relationship hostility. The moderating effect of agreeableness and perceived realism of pornography were also assessed. Level of pornography use was not predictive of any of the three outcome measures. Regular use of violent and/or humiliating pornography was associated with greater relationship hostility, but not sexism. Agreeableness was negatively predictive of both sexism measures and relationship hostility, whereas perceived realism was positively predictive of all three outcome measures. Agreeableness and perceived realism did not moderate the relationship between level of pornography use and any of the outcome measures. However, perceived realism was found to be a potential mediator of these relationships. The data were consistent with a model in which greater pornography use is associated with greater perceived realism of pornography, which in turn is associated with greater sexism and relationship hostility.

## Introduction

Pornography's possible influence on the attitudes of pornography consumers has been, and continues to be, a contentious area of study. To date, much effort has been applied to assessing pornography's influence on *attitudes supporting violence against women* (ASV). ASV can be defined as "positive affective responses to acts such as rape and other types of sexual aggression, evaluative cognitions justifying these acts, and behavioral predispositions or attractions toward such aggressive acts" (Hald & Malamuth, 2015, p. 99).

There is a growing body of research suggesting that pornography use promotes ASV. Meta-analyses have detected positive associations between pornography consumption and ASV across both experimental (Allen, Emmers, Gebhardt, & Giery, 1995) and non-experimental studies (Hald, Malamuth, & Yuen, 2010). In both these meta-analyses, the association between pornography exposure and ASV was found to be moderated by pornography type, such that this relationship was more pronounced for violent pornography use as compared to non-violent pornography use. There is also contemporary experimental evidence suggesting a link between pornography exposure and ASV. Specifically, Hald and Malamuth (2015) found experimental exposure to non-violent pornography to be predictive of ASV among men low in agreeableness.

In addition to being predictive of ASV, pornography use is also associated with acts of sexual aggression. Wright, Tokunaga, and Kraus's (2016b) meta-analysis of 22 studies found pornography use to be positively predictive of aggressive behaviour. While this finding held for both physical aggression and verbal aggression, the observed association was significantly larger for acts of verbal aggression. Furthermore, consistent with Allen, D'Alessio, and Brezgel (1995) and Hald et al. (2010), the association between pornography use and aggression was greater for violent pornography use, as compared to the use of general pornography (although the difference here was only marginally significant).

## **Pornography Use and Sexism**

While pornography's association with ASV and aggressive behaviour has been studied extensively, the effect of pornography on sexism more generally has received less academic attention. Of the research that does exist, results are mixed.

Longitudinal research has found pornography use to be associated with viewing women as sex objects among Dutch adolescent males and females (Peter & Valkenburg, 2009a), and less progressive gender role attitudes and greater sexual harassment perpetration among US adolescent males (Brown & L'Engle, 2009). Conversely, several experimental studies have failed to show an association between experimental exposure to pornography and sexism (Barak & Fisher, 1997; Barak, Fisher, Belfry, & Lashambe, 1999; Padgett, Brislin- Slütz, & Neal, 1989). This said, these experiments have been criticized for lacking statistical power (Kohut, Baer, & Watts, 2016). A more recent experimental study, utilizing a representative sample of Danish young adults (Hald, Malamuth, & Lange, 2013), found experimental exposure to pornography to increase hostile sexism among men low in agreeableness only (see Potential Moderators below). However, in this study *pre-experimental* use of pornography was associated with less egalitarian gender attitudes and greater hostile sexism among male participants, regardless of agreeableness.

A number of cross-sectional studies (outlined below) have failed to find pornography use to be consistently positively associated with sexist attitudes. However, these studies all have limitations which should be considered when parsing their findings.

Garos, Beggan, Kluck, and Easton (2004) report on two small surveys of US students. These surveys measured old-fashioned sexism (characterised by endorsement of traditional gender roles, negative female stereotyping, and differential treatment of men and women; Swim, Aikin, Hall, & Hunter, 1995; Swim & Cohen, 1997), benevolent sexism (viewing

women stereotypically but in a way that is positive in feeling for the perceiver, e.g., believing that men need to be protective of women; Glick & Fiske, 1996), and modern sexism (a covert form of sexism characterised by denial of the continuing discrimination of women, antagonism toward the demands of women's advocates, and resentment about women receiving preferential treatment; Swim et al., 1995; Swim & Cohen, 1997). Pornography use was found to be orthogonal to old-fashioned sexism, positively associated with benevolent sexism, and negatively associated with modern sexism. This said, both surveys employed relatively small samples, did not assess the effects of pornography separately by gender, and utilized the Exposure to Sexual Materials Questionnaire (Frable, Johnson, & Kellman, 1997), a measure of pornography consumption which may not adequately capture the use of Internet pornography.

A survey of just over 1,000 Australian pornography users found pornography consumption to be unrelated to sexism (as measured by a six-item scale devised for the study; McKee, 2007). However, McKee's sample may not be representative of Australian pornography users as a whole. Approximately a third of McKee's sample was recruited via the mailing list of a pornography retailer. Given that a great deal of Internet pornography is freely accessible (D'Orlando, 2011), it seems safe to assume that relatively few consumers would regularly purchase pornography. Thus, the sample may be more extreme in their use of pornography or simply less technologically savvy (and thus unable to access free Internet pornography).

Finally, Kohut, Baer, and Watts (2016) assessed the relationship between pornography use and gender non-egalitarianism using data from the General Social Survey—a large-scale, full-probability survey conducted biennially in the US. These authors found no difference between those who had viewed an X-rated film in the past year and those who had not, in terms of either attitude toward the traditional family and self-identification as a

feminist. Furthermore, pornography users actually held more egalitarian attitudes towards women being in positions of power, women working outside the home, and abortion than non-users (although these differences were small). A strength of this study is the representativeness of the sample employed. However, the General Social Survey assesses pornography consumption with a single dichotomous item (“Have you seen an X-rated movie in the last year?”). Not only is the term *X-rated movie* ambiguous and outdated (Price, Patterson, Regnerus, & Walley, 2016), the use of a single dichotomous item to measure pornography consumption may mask the linear effect of frequency of pornography use on non-egalitarian attitudes. It should also be acknowledged that data used in the study were collected as far back as 1975 and thus may not reflect current pornography usage patterns or current attitudes toward women.

### **Potential Moderators**

Several individual difference variables have been suggested as potential moderators of the relationship between pornography use and attitudes towards women, two of which are assessed as part of the current study: agreeableness and perceived realism of pornography.

**Agreeableness.** The Hierarchical Confluence Model of Sexual Aggression (HCM; also referred to as the Confluence Mediation Model) posits that the effect of pornography on sexually aggressive attitudes differs as a function of risk for sexual aggression (Malamuth, Addison, & Koss, 2000; Malamuth & Hald, 2017). That is, the effect of pornography will be more pronounced among individuals who are already high on risk factors for sexual aggression and less pronounced, or non-existent, for those who are low on such risk factors. Hostile masculinity, impersonal sex orientation, aggressiveness, psychopathy, and narcissism have all been identified as potential risk factors (Hald, Seaman, & Linz, 2014; Kingston, Malamuth, Fedoroff, & Marshall, 2009). Psychopathy and narcissism have been shown to negatively correlate with agreeableness (Bradlee & Emmons, 1992; Paulhus & Williams,

2002). As such, it has been suggested (Hald & Malamuth, 2014; Hald, Malamuth, & Lange., 2013) that measuring agreeableness may be a succinct way to index the personality characteristics associated with being at greater risk for sexual aggression. In line with the HCM, experimental exposure to pornography has been found to be associated with attitudes supporting violence against women (Hald & Malamuth, 2015) and hostile sexism (Hald, Malamuth, & Lange., 2013) among low-agreeableness men, but not high-agreeableness men.

**Perceived Realism.** Perceived realism of pornography refers to the degree to which individuals believe that the sexual situations depicted in pornography are realistic representations of “real-world” sex. Perceived realism can be thought of as a measure of how closely one’s sexual scripts match what is depicted in pornography (Peter & Valkenburg, 2010). Perceived realism as a concept is not limited to pornography research. For example, perceived realism of television programs can influence television’s effect on viewer’s perceptions of frequently televised events (e.g., gun violence; Busselle, 2001).

Perceived realism of pornography has been found to be positively associated with pornography use (Hald, 2007) and acceptance of recreational sex (Štulhofer, Buško, & Schmidt, 2012). Hald, Malamuth, & Lange., (2013) suggest that perceived realism of pornography may moderate the relationship between pornography use and attitudes toward women, such that those who think pornography is realistic are more likely to be influenced by it. However, this very study failed to find evidence for this. Other authors argue that perceived realism is better conceptualised as a mediator (as opposed to a moderator) of the relationship between pornography use and attitudes. For example, Peter and Valkenburg (2006, 2010) found perceived realism to mediate the relationship between pornography use and instrumental attitudes towards sex among adolescents, such that pornography use was associated with perceiving pornography to be realistic, which was then associated with more instrumental attitudes.

## Current Study

This study aims to assess the relationships between pornography use (both in terms of general pornography use and use of violent and/or humiliating pornography specifically), old-fashioned sexism and modern sexism among a sample of heterosexual men.<sup>1</sup> To the authors' best knowledge, this is the first study into the effects of pornography to assess old-fashioned sexism and modern sexism, outside of the small survey ( $N = 131$ ) conducted by Garos et al. (2004). Pornography's effect on hostility toward romantic relationships is also assessed.

An additional aim of the study is to extend existing research into potential moderators of the relationship between pornography use and anti-women attitudes, by investigating whether agreeableness and perceived realism moderate the associations examined.

Due to inconsistent findings in the existing literature, the study employs research questions rather than a priori hypotheses. Three research questions are investigated:

- RQ1: Is pornography use (in terms of both overall level of use and use of violent and/or humiliating content) predictive of old-fashioned sexism, modern sexism, and relationship hostility among heterosexual men?
- RQ2: Are agreeableness and perceived realism of pornography predictive of old-fashioned sexism, modern sexism, and relationship hostility among heterosexual men?
- RQ3: Do agreeableness or perceived realism of pornography moderate the associations between pornography use and old-fashioned sexism, modern sexism, and relationship hostility?

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<sup>1</sup> Three theoretical frameworks commonly applied to understanding the effects of pornography are radical feminist theory (see Kohut et al., 2016), social learning theory (see Hald, Seaman, & Linz, 2014), and sexual script theory (see Wright & Bae, 2016). Adherents of all three frameworks argue that if pornography impacts attitudes toward women, it is a result of the way in which women are depicted in pornography. The analysis was restricted to self-identified heterosexual men as it seems likely that much of the pornography consumed by gay men would not feature women.

## Method

### Participants

Data for this study were taken from a larger online survey into the effects of pornography use. A total of 470 men completed the survey. Ten duplicate cases were deleted. A further 135 participants were excluded as they did not self-identify as heterosexual, and two cases were identified as multivariate outliers and deleted (see Data Screening). This process left a final sample of 323 self-identified heterosexual men. Just under half of the sample (45.2%) consisted of students participating for course credit, with the remainder (54.8%) being community members. Table 8.1 reports on the demographic characteristics of the final sample.

Table 8.1

#### *Demographic Characteristics of Sample*

Variable	<i>M (SD)/Percent</i>
Age	27.96 (11.26)
Religiosity <sup>a</sup>	3.30 (2.46)
Country of residence	
Australia/New Zealand	41.8
Asia	19.5
Europe	7.1
USA	26.9
Other	4.6
Relationship status	
Not in relationship	46.2
In relationship, cohabiting	32.2
In relationship, not cohabiting	22.0
Highest level of formal education	
No university study	23.8
Some undergraduate study	31.6
Undergraduate degree	25.7
Some postgraduate study/degree	18.9

<sup>a</sup>1-9 scale, with higher scores indicating greater agreement with statement "I am religious"



## Measures

**Pornography use.** In the study, 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 contains: 1) explicit depictions of genitals, and/or 2) clear and explicit depictions of sexual acts such as vaginal intercourse, anal intercourse, oral sex, masturbation etc.” The prevalence of pornography consumption was assessed with two yes/no items: “Have you ever watched pornography?,” and “Have you watched pornography in the last six months?”

Frequency of pornography use was measured with a Likert-type scale ranging from 1 = *less than monthly* to 8 = *more than once a day*. Average viewing session length was assessed via a Likert-type scale anchored by 1 = *less than 5 minutes* and 6 = *greater than 60 minutes*. Participants were instructed that these items related to their pornography use in the past six months. An index of level of pornography consumption over the past six months was created by z-standardising and then averaging these two items.

Participants were also asked to indicate whether they regularly view violent pornography and whether they regularly view pornography which they feel “humiliates the performers involved”<sup>2</sup> (where regular viewing is designated as at least once per month, over a six-month period). Violent pornography was defined for participants as “pornography depicting violent acts (e.g., whipping or simulations of forced sex).”

**Agreeableness.** Agreeableness was measured using the agreeableness subscale of Sucier’s (1994) short-form version of Goldberg’s (1992) Big-Five Marker Scale. The subscale consists of eight Likert-style items anchored by 1 = *extremely inaccurate* to 9 = *extremely accurate*. In the present study the scale had an alpha of .82.

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<sup>2</sup> We felt assessing use of humiliating pornography, in addition to violent pornography, was important as pornography in which female performers are humiliated still models problematic depictions of women for the viewer, and thus may still promote sexism.

**Perceived realism.** The perceived realism of pornography was measured using a scale developed by Peter and Valkenburg (2010). The scale consists of six Likert-style items anchored by 1 = *fully disagree* and 5 = *fully agree*. For some items, original item wording was modified, namely the phrase “sex on the Internet” was replaced by “pornography.” An example item is “In reality, the sex people have is like the sex that appears in pornography.” In the current study the scale had an alpha of .84.

**Sexism.** Sexism was measured using the Old-Fashioned Sexism Scale (OFSS) and Modern Sexism Scale (MSS; Swim et al., 1995; Swim & Cohen, 1997). The scales consist of five and eight items respectively. All item responses ranged from 1 = *strongly disagree* to 5 = *strongly agree*. The MSS taps denial of the continuing discrimination of women, antagonism toward the demands of women’s advocates, and resentment about special favours for women. The following is an example of a MSS item: “Over the past few years, the government and news media have been showing more concern about the treatment of women than is warranted by women's actual experiences.” The OFSS taps endorsement of traditional gender roles, negative female stereotyping, and differential treatment of men and women. An example of an OFSS item is “Women are generally not as smart as men.” In some instances, item wording was modified to make items applicable to an international audience (e.g., “It is easy to understand the anger of women's groups in America” was altered to “It is easy to understand the anger of women's groups”). The scale is scored such that higher scores indicate greater sexism. In the current study the OFSS and the MSS had alphas of .73 and .80 respectively.

**Relationship hostility.** A number of measures of different aspects of men’s attitudes toward women within the context of relationships were included in the study. These include three of the subscales of Ward’s (2002) Attitudes About Dating and Sexual Relationships Measure: dating is a game or recreational sport (five items, e.g., “Dating is basically a game, a

battle of the sexes, where both males and females try to gain the upper hand and manipulate each other,”  $\alpha = .50$ ); men are sex-driven and have trouble being faithful (seven items, e.g., “Men are mostly interested in women as potential sex partners and don’t want to be ‘just friends’ with a woman,”  $\alpha = .78$ ); and women as sex objects (eight items, as well as Peter & Valkenburg’s, 2007, two additional items, e.g., “An attractive woman should expect sexual advances and should learn how to handle them,”  $\alpha = .80$ ). Two subscales of the Hurlbert Index of Sexual Narcissism (Hurlbert, Apt, Gasar, Wilson, & Murphy, 1994; Wryobeck & Wiederman, 1999) were also included: sense of entitlement (six items, e.g., “In a relationship where I commit myself, sex is a right,”  $\alpha = .65$ ); and emotional distance (three items, e.g., “Too much relationship closeness can interfere with sexual pleasure,”  $\alpha = .80$ ). Burt’s (1980) Adversarial Sexual Beliefs Scale (nine items, e.g., “A man's got to show the woman who's boss right from the start or he'll end up henpecked,”  $\alpha = .85$ ) was also used. All items utilized a five-point scale ranging from 1 = *strongly disagree* to 5 = *strongly agree*.

These six scales were found to intercorrelate to a high degree (Pearson’s correlations ranged from .50 to .72). Principle axis factoring was employed on the scale totals. Both the Kaiser-Guttman rule and the scree-plot indicated that all six scales loaded on a single factor. This factor explained 63% of the variance in the items. As all of these scales relate to hostility towards romantic relationships and dating, or an adversarial orientation within romantic relationships, we have named this factor *relationship hostility*. Relationship hostility total scores were generated by z-standardising and then averaging total scores across these six scales.

**Demographics.** The study also assessed a number of demographic variables including age, country of residence, highest level of formal education (no university study; some undergraduate study; undergraduate degree; some postgraduate study or postgraduate degree), relationship status (in a relationship and cohabiting; in a relationship but not

cohabiting; not in a relationship) and sexual orientation (heterosexual; gay; bisexual; other).

A single Likert-type item, “I am religious,” was used to measure religiosity. Response options for this item ranged from 1 = *extremely inaccurate* to 9 = *extremely accurate*.

## **Procedure**

Participation in the study involved completing a confidential online survey. Participation took roughly 30 minutes. The study was open to all adult males. Both users and non-users of pornography were encouraged to participate. Student participants were also recruited. Community participants were recruited through websites which host psychological studies (e.g., [callforparticipants.com](http://callforparticipants.com), [lehmillier.com](http://lehmillier.com), [socialpsychology.org](http://socialpsychology.org), [facebook.com/psychologyparticipantsresearchers](https://facebook.com/psychologyparticipantsresearchers)). A \$50 prize draw was offered for participation. Ethical approval for the study was granted by the Human Research Ethics Committee of the authors’ host institution.

## **Data Screening**

Univariate outliers were detected using the outlier labelling rule with a 2.2 multiplier (Hoaglin & Iglewicz, 1987). Four outlying values were detected and windsorized. Mahalanobis distances were generated to screen for multivariate outliers (Tabachnick & Fidell, 2013). Two multivariate outliers were detected and deleted. Missing data analysis was performed on all scale items. No item was missing more than 6% of responses. Little’s MCAR test indicated that data were missing completely at random ( $p = .245$ ). Expectation-maximization was used to obtain maximum likelihood estimates for missing scale items.

## **Results**

### **Preliminary Analysis**

Nearly the entire sample had viewed pornography at some point (96.3%) and in the last six months (91%). Median response for frequency of use over the last six months was 3–4 times per week. Median response for average session length was 15–30 min. In terms of the

use of violent or humiliating content, around three-quarters of the sample (76.8%) indicated that they do not regularly view either violent or humiliating pornography, 16.1% indicated that they regularly view either violent or humiliating pornography, and 7.1% indicated that they regularly view both violent pornography and humiliating pornography.

Zero-order correlations between continuous study variables are presented in Table 8.2. Due to previous inconsistent findings around the association between pornography use and sexism, all tests were two-tailed. Level of pornography use was found to correlate positively with age and perceived realism of pornography. Perceived realism of pornography was positively associated with all three outcome measures (old-fashioned sexism, modern sexism, and relationship hostility). Agreeableness was negatively associated with all outcome measures.

Table 8.2

*Intercorrelations between Continuous Study Variables*

	1	2	3	4	5	6	7	8
1. Level of use		.21***	-.10	.04	.16**	-.10	-.10	.09
2. Age			.04	.21***	-.08	-.22***	-.24***	-.13*
3. Religiosity				.08	.02	.19**	.09	.14*
4. Agreeableness					.05	-.28***	-.17**	-.20***
5. Perceived realism						.27***	.25***	.42***
6. Old-fashioned sexism							.51***	.56***
7. Modern sexism								.43***
8. Relationship hostility								

*Note.*  $df = 321$ ; all tests two-tailed

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

A series of independent-samples  $t$  tests were performed comparing violent/humiliating pornography use groups (do not regularly use violent and/or humiliating content; regularly use violent and/or humiliating content) on pornography use, age, religiosity, agreeableness, perceived realism, old-fashioned sexism, modern sexism, and relationship hostility. The groups were found to differ on pornography use,  $t(321) = -5.32, p < .001$ , Cohen's  $d = -.72$ , and relationship hostility only,  $t(321) = -3.02, p = .003$ , Cohen's  $d = -.39$ . Those who do not regularly view violent and/or humiliating pornography consumed significantly less pornography ( $M = -0.16, SD = 0.93$ ) than those who do ( $M = 0.52, SD = 0.88$ ). Those who do not regularly view violent and/or humiliating pornography also scored significantly lower on relationship hostility ( $M = -0.07, SD = 0.78$ ) than those who do ( $M = 0.24, SD = 0.82$ ).

### Tests of Research Questions

General linear modelling was used to assess the study research questions. Three models were specified; one for each outcome variable (old-fashioned sexism, modern sexism, and relationship hostility). Four predictors (overall level of pornography use, regular use of violent and/or humiliating pornography, agreeableness, and perceived realism of pornography) and four control variables (age, religiosity, education, and relationship status) were entered into the models. To assess the moderating effect of agreeableness and perceived realism two product terms were also entered into the models: *overall pornography use*  $\times$  *agreeableness* and *overall pornography use*  $\times$  *perceived realism*.

This set of variables significantly predicted old-fashioned sexism,  $F(13, 309) = 7.54, p < .001, R^2_{\text{adj}} = .21$ , modern sexism,  $F(13, 309) = 4.75, p < .001, R^2_{\text{adj}} = .13$ , and relationship hostility,  $F(13, 309) = 8.59, p < .001, R^2_{\text{adj}} = .24$ . Parameter estimates are reported in Table 8.3.

Regarding RQ1, overall level of pornography use was not a significant predictor of any of the outcome measures. Regular use of violent and/or humiliating pornography was positively associated with relationship hostility. Agreeableness was negatively associated with all three outcome variables, while perceived realism was positively associated with the outcome variables (RQ2). Agreeableness and perceived realism were not found to moderate the relationship between overall level of pornography use and old-fashioned sexism, modern sexism, or relationship hostility (RQ3).

Table 8.3

*Regression Analyses Assessing the Effect of Study Variables on Old-Fashioned Sexism, Modern Sexism and Relationship Hostility*

	<i>B</i>	<i>SE</i>	<i>p</i>	$\eta_p^2$
Old-Fashioned Sexism				
Level of pornography use	-.96	1.02	.350	< .01
Use of violent/humil pornography				
No use of violent/humil pornography <sup>a</sup>				
Use violent/humil pornography	-.36	.41	.378	< .01
Perceived realism	.19	.04	< .001	.07
Agreeableness	-.09	.02	< .001	.07
Pornography use × perceived realism	.02	.04	.561	< .01
Pornography use × agreeableness	.01	.02	.577	< .01
Age	-.02	.02	.228	.01
Religiosity	.25	.07	< .001	.04
Education				
No university study <sup>a</sup>				
Some undergraduate study	-1.00	.45	.025	.02
Undergraduate degree	-.28	.46	.552	< .01
Some postgraduate study/degree	-.55	.54	.309	< .01
Relationship Status				
Not in relationship <sup>a</sup>				
In relationship, cohabiting	-.73	.44	.098	.01
In relationship, not cohabiting	.24	.43	.580	< .01
Modern Sexism				
Level of pornography use	-.03	1.72	.986	< .01
Use of violent/humil pornography				
No use of violent/humil pornography <sup>a</sup>				
Use violent/humil porn	.26	.68	.710	< .01
Perceived realism	.31	.07	< .001	.07
Agreeableness	-.07	.03	.028	.02
Pornography use × perceived realism	-.04	.06	.539	< .01
Pornography use × agreeableness	< .01	.03	.897	< .01
Age	-.05	.03	.108	< .01



Religiosity	.18	.11	.113	< .01
Education				
No university study <sup>a</sup>				
Some undergraduate study	−1.13	.75	.132	.01
Undergraduate degree	.13	.78	.864	< .01
Some postgraduate study/degree	−1.20	.91	.191	< .01
Relationship Status				
Not in relationship <sup>a</sup>				
In relationship, cohabiting	−1.19	.74	.107	.01
In relationship, not cohabiting	−.30	.72	.672	< .01
Relationship Hostility				
Level of pornography use	.23	.25	.345	< .01
Use of violent/humil pornography				
No use violent/humil pornography <sup>a</sup>				
Use violent/humil pornography	.20	.10	.041	< .01
Perceived realism	.07	.01	< .001	.17
Agreeableness	−.01	.01	.001	.03
Pornography use × perceived realism	< .01	.01	.912	< .01
Pornography use × agreeableness	−.01	.01	.267	< .01
Age	−.01	.01	.722	< .01
Religiosity	.05	.02	.005	.03
Education				
No university study <sup>a</sup>				
Some undergraduate study	−.23	.11	.033	.02
Undergraduate degree	−.09	.11	.430	< .01
Some postgraduate study/degree	−.10	.13	.423	< .01
Relationship Status				
Not in relationship <sup>a</sup>				
In relationship, cohabiting	−.15	.11	.146	< .01
In relationship, not cohabiting	.04	.10	.706	< .01

<sup>a</sup>Reference category

## Mediation Analysis

As is discussed above, Hald, Malamuth, and Lange (2013) have suggested that the relationship between pornography use and sexism may be moderated by individuals' perceptions of the realism of pornography. In contrast, Peter and Valkenburg (2006, 2010) conceptualize perceived realism as a mediator of the relationship between pornography use and attitudes. As no evidence was found for the moderation hypothesis, further analysis was performed to determine whether pornography use has an indirect effect on sexism through the perceived realism of pornography. This was done using the PROCESS (version 2.16.3) macro for SPSS (Hayes, 2013). PROCESS produces point estimates of indirect effects and

then bootstraps confidence intervals (CIs) around these point estimates. A CI band that does not contain zero indicates a significant effect (Hayes, 2009, 2013).

Three mediational models were specified (one for each outcome variable). Once again, control variables (age, religiosity, education, and relationship status) were also entered into the models. This analysis is presented in Table 8.4. As can be seen, pornography use was found to have a significant indirect effect on old-fashioned sexism, modern sexism, and relationship hostility through perceived realism, even when controlling for demographic factors. The data were consistent with a model in which pornography use is associated with greater perceived realism, which in turn is associated with greater sexism and relationship hostility. Direct and total effects were non-significant for all three outcome variables.

Table 8.4

*Indirect Effects (and their 95% CIs) of Pornography Use on Old-Fashioned Sexism, Modern Sexism and Relationship Hostility through Perceived Realism of Pornography, Controlling for Age, Religiosity, Education, and Relationship Status*

Outcome variable	Indirect effect through perceived realism	Direct effect	Total effect
Old-fashioned sexism	<b>.16 [.06, .31]</b>	-.26 [-.61, .09]	-.10 [-.45, .25]
Modern sexism	<b>.16 [.06, .31]</b>	-.26 [-.61, .09]	-.10 [-.45, .25]
Relationship hostility	<b>.06 [.03, .10]</b>	.05 [-.03, .13]	.11 [-.02, .20]

*Note.* Bias corrected and accelerated CIs generated based on 5,000 resamples; significant effects in bold

## Discussion

This study investigated the effect of pornography use on men's attitudes toward women. The possible moderating effect of agreeableness and perceived realism of pornography was also assessed. While pornography use among the sample was generally high (e.g., over 90% of the sample had seen pornography in the last six months and median frequency of use was 3–4 times per week), these figures are consistent with existing research

into the prevalence and frequency of pornography use among men (Böhm, Franz, Dekker, & Matthiesen, 2014; Hald, Kuyper, Adam, & de Wit, 2013; Kvalem, Træen, Lewin & Štulhofer 2014; Sun, Miezan, Lee, & Shim, 2014; Svedin, Åkerman, & Priebe, 2011; Træen & Daneback, 2013).

Less than a quarter (23.2%) of the sample indicated that they regularly view violent pornography, humiliating pornography, or both. Figures on the prevalence of violent pornography consumption tend to vary (likely, in part, due to cross-study differences in the way that violent pornography is operationally defined). Several studies have found fewer than 15% of men to consume violent pornography (Bridges & Morokoff, 2011; Hald, Kuyper, et al., 2013; Hald & Mulya, 2013; Kvalem et al., 2011; Svedin et al., 2011). However, violent pornography consumption figures as high as 45.6% have also been reported in the literature (Romito & Beltramini, 2011). The observed prevalence of violent and/or humiliating pornography use in the current study is somewhat larger than the rates of violent pornography use commonly reported in the literature. However, the current study assessed the use of violent *as well as* humiliating pornography. For this reason, the prevalence figure reported here is not directly comparable to those reported in past literature. Future studies may benefit from examining the effects of humiliating pornography alongside the effects of violent pornography.

Some authors, drawing on conditioning theories, have argued that heavy pornography users may gravitate toward more “extreme” pornographic material over time, as a result of habituating to less extreme pornography (e.g., Seto, Maric, & Barbaree, 2001). Consistent with this conditioning perspective, in the current study violent and/or humiliating pornography users reported viewing significantly more pornography than those who do not regularly view violent or humiliating content. Alternatively, it may just be the case that high-volume pornography users are more likely to come across violent content as a result of their

greater exposure to pornography. Longitudinal studies would be useful to further explore this conditioning hypothesis.

The study did not find overall level of pornography use to have a significant total effect on old-fashioned sexism, modern sexism, or relationship hostility. These findings are inconsistent with Hald, Malamuth, and Lange's (2013) study in which past exposure to pornography was positively associated with hostile sexism—as measured by Glick and Fiske's (2001) Attitudes Towards Women Scale (ATWS). There is significant overlap between the hostile sexism subscale of the ATWS and the Modern Sexism Scale (Swim & Cohen, 1997; Swim et al., 1995) employed in this study (e.g., both have multiple items tapping resentment towards women's advocacy groups). As such, it is unclear as to why the current study did not find a significant relationship between pornography use and modern sexism, whereas Hald, Malamuth, and Lange (2013) detected an association between pornography use and hostile sexism. On the other hand, this lack of an association is consistent with Kohut et al. (2016), McKee (2007), and Garos et al. (2004), all of whom found pornography use to have no association, or a small *negative* association, with sexism.

The findings of the current study, together with extant research into pornography use and sexism (the majority of which have failed to find a positive association), tentatively suggests that pornography use does not readily promote general sexism (outside of a possible indirect effect through perceived realism; see below). However, there is a significant research base to indicate that pornography use promotes attitudes supporting violence against women (ASV; see Introduction). On the face of it, this discrepancy is perplexing. How could it be that pornography promotes ASV but not sexism more generally? Sexual script theory (Wright & Bae, 2016) would posit that pornography would have the greatest influence on attitudes relating to domains which it frequently depicts: sex and relationships. While authors such as Gorman, Monk-Turner, and Fish (2010) have found pornography to depict gender power-

imbalances in relation to sex, pornography is probably less likely to depict instances of gender power-imbalances in relation to family, work, or society more generally. This may be especially true for Internet pornography. Freely-accessible, pornographic Internet videos tend to be short (Vannier, Currie, & O'Sullivan, 2104) and are frequently produced by amateurs (Gorman et al., 2010). As such, they may be more likely to present sex scenes with little, or no, establishing story. Therefore, much of the pornography that users consume, simply may not contain messages regarding women's social standing in relation to men (outside of the sexual domain). Interestingly, while the use of violent and/or humiliating pornography was not predictive of sexism in the present study, it was associated with greater relationship hostility. The measure of relationship hostility employed in the current study tapped attitudes more closely related to what is actually depicted in violent pornography (e.g., sex without emotional attachment, men taking charge within a sexual encounter, etc.).

Lower agreeableness was associated with greater old-fashioned sexism, modern sexism, and relationship hostility. Agreeableness did not moderate the relationship between pornography use and the three outcome measures. This is inconsistent with past research by Hald, Malamuth, and Lange (2013) and Hald and Malamuth (2015). However, the current study's sample may not have been representative of the population in terms of agreeableness, given that individuals low in agreeableness are less likely to volunteer for research (Rogerlberg et al., 2003). Thus, a moderating effect may still be present among those at the low end of the population distribution of agreeableness.

Believing pornography to realistic in its depictions of sexual situations was associated with greater sexism and relationship hostility. Like agreeableness, perceived realism was also not found to moderate the relationships between pornography use and the three outcome measures. However, the data were consistent with a model in which perceived realism mediates the relationships between pornography use and sexism and relationship hostility.

For all three outcome measures, the direction of this indirect effect was positive. That is, greater pornography use was associated with greater perceived realism, which was associated with greater sexism. As this was a supplementary analysis, these should be considered provisional, exploratory findings only. Nonetheless, the findings are consistent<sup>3</sup> with Peter and Valkenberg's (2006, 2010) argument that frequent pornography use alters consumers' sexual scripts to correspond with the world depicted in pornography (thus pornography is perceived as being more realistic) and that these altered sexual scripts then influence consumers' attitudes and behaviours.

It should be noted that while these data are consistent with the direction of causation posited by Peter and Valkenburg, alternative causal explanations cannot be ruled out, due to the correlational study design (see Pek & Hoyle, 2016 for a discussion of the problem of assessing causal hypotheses based on simple mediation models employing cross-sectional data). For example, it may be the case that sexist men are more likely to view pornography as being realistic (as it conforms to their pre-existing worldview), and, as a result, are more likely to readily consume pornography. This said, Peter and Valkenburg (2010) do provide some evidence for the mediating role of pornography consumption within a longitudinal context, which lends credence to the causal order they propose.

One final finding that is worth considering is that age had a non-significant zero-order correlation with perceived realism. One could argue that, if greater exposure to pornography results in perceiving pornography to be more realistic, it should be the case that age and perceived realism would be positively associated (as older men would have more cumulative experience with pornography). However, it may also be the case that older men have more real-world relationship experience and, are thus, better able to recognise the unrealistic nature of the sexual relationships depicted in pornography. Accordingly, real-world relationship

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<sup>3</sup> While finding a significant indirect effect here would not prove Peter and Valkenberg's (2006, 2010) proposed causal model, a non-significant indirect would provide strong evidence against the model. It is in this sense that I say the model is "consistent" with Peter and Valkenberg's argument.

experience may act as a counter-process to pornography's impact on problematic attitudes toward women. (It is worth noting that the mediation models tested above controlled for age.)

Additional longitudinal studies into the mediating effect of perceived realism are warranted, especially among younger men who may have limited real-world relationship experience. If perceived realism is in fact a mediator of the relationship between pornography use and sexism, it is possible that the deleterious social effects of pornography could be attenuated by educating consumers of the unrealistic nature of pornography.

## **Chapter 9: Pornography, Preference for Porn-Like Sex, Masturbation, and Men's Sexual and Relationship Satisfaction**

### **Author Note**

This chapter is a manuscript version (post-peer-review) of the following publication:  
Miller, D. J., McBain, K. A., Li, W. W., & Raggatt, P. T. F. (2019). Pornography, desire for porn-like sex, masturbation, and men's sexual and relationship satisfaction. *Personal Relationships*, 26, 93–113. <https://doi.org/10.1111/perc.12267><sup>1</sup>

Subsequent to this manuscript's acceptance for publication, further evidence for frequent masturbation playing a key role in the relationship between pornography use and relationship satisfaction has been made available (see Perry, 2019).

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<sup>1</sup> Copyright Note: This is the peer reviewed version of the following article: Miller, D. J., McBain, K. A., Li, W. W., & Raggatt, P. T. F. (2019). Pornography, desire for porn-like sex, masturbation, and men's sexual and relationship satisfaction. *Personal Relationships*, 26, 93–113, which has been published in final form at <https://doi.org/10.1111/perc.12267>. This article may be used for non-commercial purposes in accordance with Wiley Terms and Conditions for Use of Self-Archived Versions.



### Abstract

Pornography use, preference for “porn-like” sex, masturbation, and sexual and relationship satisfaction were assessed among two samples of men ( $N_{\text{study 1}} = 326$ ,  $N_{\text{study 2}} = 335$ ). Frequent pornography use was associated with sexual dissatisfaction, greater preference for porn-like sex, and more frequent masturbation in both studies. Pornography use was associated with relationship dissatisfaction in Study 2 only. The data did not support the notion that pornography negatively impacts sexual or relationship satisfaction via preference for porn-like sex. In fact, it may bolster sexual satisfaction by promoting sexual variety. The data were consistent with a model in which pornography negatively indirectly affects sexual and relationship satisfaction via masturbation frequency. Pornography use may have multiple opposing influences on sexual satisfaction.

## **Introduction**

Investigating pornography's impact on romantic relationships is a relatively recent development in the pornography research literature. One focus of this nascent line of enquiry has been to determine the nature of the association between pornography use and sexual and relationship satisfaction. While numerous studies (reviewed below) have indicated that frequent pornography use is associated with sexual and relationship dissatisfaction, relatively few studies have investigated possible drivers of these associations. Some authors (e.g., Wright, Tokunaga, Kraus, & Klann, 2017) have suggested that pornography use negatively impacts sexual and relationship satisfaction by distorting consumers' conceptions of what sexual practices are normative and satisfying. It is argued that exposure to the messages contained within pornography creates a preference for the kinds of sexual practices commonly depicted in pornography (i.e., a preference for "porn-like" sex), which leads porn users to feel sexually dissatisfied when their preferences are not met by their sexual partners. Another possibility is that it is not exposure to the messages contained within pornography, but frequent masturbation (which results from frequent pornography use) which undermines consumers' feelings of sexual satisfaction, by negatively impacting sexual performance, arousability, or feelings of sexual interest toward one's partner. This paper has two goals. First, it aims to replicate and extend existing research by assessing the degree of association between pornography use, sexual satisfaction, relationship satisfaction, and preferences for porn-like sex among men (who, as a group, are the more frequent consumers of pornography; Hald, 2006; Petersen & Hyde, 2010). Second, it seeks to investigate two possible drivers of the associations between pornography use and sexual and relationship dissatisfaction: preference for porn-like sex and masturbation frequency.

Numerous correlation studies have been conducted examining the associations between pornography use and relationship and sexual satisfaction. In one such study,

pornography use was predictive of sexual dissatisfaction but not relationship dissatisfaction, among both men and women (Poulsen, Busby, & Galovan, 2013). Daspe, Vaillancourt-Morel, Lussier, Sabourin, and Ferron (2018) similarly found pornography use to correlate with sexual satisfaction but not relationship satisfaction. These authors also found sexual and relationship satisfaction to moderate the relationship between frequency of pornography use and feeling that one's pornography use is out of control, such that this association was stronger among those low in sexual and relationship satisfaction. Another two studies have detected negative relationships between pornography use and relationship and sexual satisfaction among men but not women (Bridges & Morokoff, 2011; E. M. Morgan, 2011). Szymanski and Stewart-Richardson (2014) similarly found pornography use to be predictive of poorer relationship quality and sexual dissatisfaction among their sample of young men. In contrast, some authors have found pornography use to have no direct effect on relationship intimacy (Štulhofer, Buško, & Schmidt, 2012), to be predictive of relationship dissatisfaction among men low in emotional intimacy only (Veit, Štulhofer, & Hald, 2017), or to have an indirect effect on sexual dissatisfaction through suppression of intimacy, but only among male consumers of paraphilic pornography (Štulhofer, Buško, & Landripet, 2010).

As can be seen, there are some inconsistencies in the literature in terms of the significance of the associations between pornography use and sexual and relationship satisfaction. Even among the significant results, estimates of the magnitude of these effects tend to vary. Fortunately, Wright, Tokunaga, et al. (2017) recently conducted a meta-analysis of studies assessing pornography's impact on intrapersonal (body image and sexual self-esteem) and interpersonal satisfaction (relationship and sexual satisfaction). This meta-analysis found an average correlation between pornography use and interpersonal satisfaction of  $-.10$ . However, this relationship was moderated by gender ( $-.13$  for men and  $-.01$  for women). Among men, the average correlation between pornography use and relationship

satisfaction was  $-.12$  and the average correlation between pornography use and sexual satisfaction was  $-.14$  (among women these figures were  $-.03$  and  $.00$  respectively). While correlations in the range of  $-.12$  to  $-.14$  would be considered “small” in relation to Cohen’s (1992) effect size guidelines, other factors (e.g., the commonality of predictors and severity of outcomes) should also be considered when determining the importance of an effect of any particular magnitude (Rosenthal, 1986; Rosnow & Rosenthal, 2003). Indeed, Hald (2015) posits that the small (in magnitude) effect sizes commonly observed across the pornography research literature warrant consideration, as these effects may still have large social and practical repercussions if outcomes are sufficiently adverse. This is especially relevant given the high prevalence of pornography use among men (Hald, 2006).

While Wright, Tokunaga, et al.’s (2017) meta-analysis suggests that pornography use is associated with sexual and relationship satisfaction (at least among men), it tells us little about the causal direction of these associations. Some authors (e.g., L. Campbell & Kohut, 2017; Kohut, Fisher, & Campbell, 2017) are critical of assuming that pornography use causes sexual or relationship dissatisfaction, arguing that it is equally plausible that relationship or sexual dissatisfaction could cause someone to seek out pornography. Fortunately, some longitudinal studies are available to draw on. A three-wave study of Dutch adolescents, uncovered a reciprocal directional relationship between pornography use and sexual satisfaction (Peter & Valkenburg, 2009b). Later, Doornwaard et al. (2014), who also sampled Dutch adolescents, found earlier pornography use to be predictive of later sexual dissatisfaction. Muusses, Kerkhof, and Finkenauer (2015) found that among newlywed couples, husbands’ pornography use was bi-directionally related to their relationship satisfaction. However, this study did not detect a relationship between husbands’ pornography use and sexual satisfaction in either direction. More recently, a large, nationally-representative sample of married US adults found that men’s pornography use was predictive

of self-reported marriage quality at a six-year follow-up (Perry, 2016, 2018). Additionally, there is some experimental evidence to indicate that pornography exposure negatively impacts satisfaction with one's sexual partner's physical appearance, sexual curiosity, and sexual performance (Zillmann & Bryant, 1988). Taken together, these studies provide preliminary evidence of pornography use causing relationship and sexual dissatisfaction.

Wright, Tokunaga, et al.'s (2017) review highlights some assertions common to many of the theoretical explanations for how pornography may negatively impact relationships: 1) pornography creates certain expectations of sexual relationships, shaping what is considered normative and desirable, 2) these expectations are not met by "real-world" sexual partners, 3) this incongruence between what is expected and what actually occurs within sexual relationships leads to sexual dissatisfaction, and 4) this sexual dissatisfaction then negatively impacts relationship satisfaction. This kind of argument is consistent with many of the theoretical frameworks employed within the pornography effects literature (e.g., sexual script theory, gender role conflict theory, social comparison theory, cultivation theory; Wright, Tokunaga et al., 2017).

There is some evidence for the first of these assertions. Certainly, it seems that pornography can shape sexual scripts. For example, pornography use is associated with greater sexual permissiveness (Braithwaite, Coulson, Keddington, & Fincham, 2015; Wright, 2013a; Zillmann & Bryant, 1988), a greater incidence of behaviours such as "hooking up" (Braithwaite et al., 2015), and believing women to be more likely to engage in porn-like sex in particular social situations (Miller, McBain, & Raggatt, 2018). Perhaps more directly in support of assertion one, E. M. Morgan (2011) found that men's pornography use was positively associated with a preference for the types of sexual practices frequently depicted in pornography, across all three of the domains she measured: hot sex (e.g., trying multiple positions), kinky sex (e.g., the use of sex toys), and sexual appearance (e.g., partner dressing

in lingerie). Furthermore, college men's pornography use has been found to be predictive of requesting pornographic sex acts from sexual partners and conjuring pornographic images during sex to maintain arousal (Sun, Bridges, Johnson, & Ezzell, 2016). Similarly, frequency of pornography use was directly predictive of preferring pornographic, to partnered, sexual excitement among a convenience sample of German men and women (Wright, Sun, Steffen, & Tokunga, 2017).

A large qualitative study of partnered men and women's responses to open-ended questions regarding the impact pornography has on romantic relationships (Kohut, Fisher, & Campbell, 2017), also supports the notion that pornography influences consumers' sexual norms and preferences. While participants in the study most commonly reported that pornography use had had no negative impact on their relationship, a relatively common theme to emerge among respondents (indeed, the most frequently reported negative effect) was that pornography creates unrealistic expectations in the sexual domain, particularly around sexual appearance, performance, likes and dislikes, and the willingness of partners to engage in various sexual behaviors. Furthermore, a number of participants in the study made explicit links between their unrealistic expectations and a decreased interest in sex with their partner.

The fourth assertion (that feelings of sexual dissatisfaction undermine relationship satisfaction) is supported by the large positive correlation between sexual and relationship satisfaction observed across multiple studies (Bridges & Morokoff, 2011; Muusses, Kerkhof, & Finkenauer, 2015; Poulsen, Busby, & Galovan, 2013; Szymanski & Stewart-Richardson, 2014). However, some authors (e.g., Lambert, Negash, Stillman, Olmstead, & Fincham, 2012; Muusses et al., 2015; Perry, 2016; Wright, Tokunaga, et al., 2017) posit that pornography use has a direct effect on relationship satisfaction, irrespective of its influence on sexual satisfaction. Furthermore, one longitudinal study (Byers, 2005) found sexual and

relationship satisfaction to change concurrently, rather than sexual dissatisfaction causing relationship dissatisfaction. Accordingly, pornography's association with both sexual and relationship satisfaction are assessed in the current paper.

To the current authors' best knowledge, no study has formally assessed whether the relationship between pornography use and sexual or relationship satisfaction is mediated by preference for porn-like sex. This being said, Wright, Sun, et al.'s (2017) aforementioned path analysis did assess whether the relationship between pornography use and sexual satisfaction is mediated by preference for pornographic, over partnered, sexual excitement. However, we contend that preference for pornographic, over partnered, sexual excitement is distinct from (albeit related to) preference for porn-like sex. The former refers to preferring to be aroused by pornographic stimuli, as opposed to real-world stimuli (e.g., imaging pornographic images while having sex with one's partner), while the latter relates to interest in engaging in the kinds of sexual practices depicted in pornography with a sexual partner. Wright, Sun, et al.'s (2017) study found support for a model in which pornography use results in perceiving pornography to be a good source of sexual information, which in turn is associated with 1) a greater preference for pornographic, over partnered, sexual excitement, and 2) the devaluation of sexual communication; both of which were related to sexual dissatisfaction in the path model.

While the notion that pornography undermines sexual and relationship satisfaction by altering sexual preferences has received much theoretical consideration, less attention has been paid to the role of masturbation. This is despite the fact that men typically masturbate when consuming pornography (Böhm, Franz, Dekker, & Matthiesen, 2014; Carvalheira, Træen, & Štulhofer, 2015). It is the current authors' contention that pornography consumption may result in male porn users masturbating more frequently than they otherwise would. We believe this frequent masturbation may negatively impact male porn users' sexual

and relationship satisfaction by undermining their sexual performance, arousability, or sexual interest in their romantic partners. Our argument is based on a consideration of the male sexual response cycle, particularly the post-ejaculatory refractory time (PERT) phenomenon.

PERT is the period following ejaculation during which erections and further ejaculation are inhibited (Levin, 2009). Animal research suggests the existence of *absolute PERT*, during which erections and ejaculation are entirely inhibited, and *relative PERT*, during which arousal is suppressed but still possible, especially in response to novel stimuli (e.g., a new partner, or a new virtual partner in the form of pornography). The exact cause of PERT among men is unknown. However, ejaculation has been shown to increase prolactin (Brody & Krüger, 2006), a hormone which reduces sex drive (Krüger, Haake, Hartmann, Schedlowski, & Exton, 2002; Krüger et al., 2003). Post-ejaculatory increases in oxytocin (Levin, 2003, 2009) and serotonin (Levin, 2009; Turley & Rowland, 2013) have also been speculated to play a role in PERT. Frequent masturbation (due to frequent pornography use) could undermine male porn users' sexual performance, arousability, or partnered sexual interest by keeping these porn users in a near-continual state of relative PERT, in which their arousal is suppressed. This process would likely reinforce itself if the porn user is only able to become fully sexually aroused by novel sexual stimuli (such as pornography) due to already being in a state of relative PERT.

There is some extant research to support the idea that frequent masturbation may undermine men's arousal or partnered sexual interest. Daneback, Træen, and Månsson (2009) found solitary pornography use to be predictive of arousal problems in partnered men and Træen and Daneback (2013) found that among their sample of Norwegian men, pornography use for the purposes of solo masturbation was associated with relationship dissatisfaction. In another study, a strong positive relationship was observed between frequency of viewing pornography and frequency of masturbation in a sample of men with decreased sexual desire



(Carvalheira et al., 2015). The same study found masturbation frequency to be associated with greater sexual boredom and less relationship intimacy. A number of themes consistent with this line of thinking also emerged from Kohut et al.'s (2017) qualitative study, including pornography use resulting in decreased arousal response and decreased interest in sex with one's partner (but not decreased interest in pornography). Some participants in the study also connected the use of pornography as an alternative outlet to sex to decreased interest in sex with one's partner. For example, being uninterested (or unable) to have sex with one's partner due to having used pornography to masturbate earlier in the day.

There is also some evidence linking pornography use to sexual functioning issues such as erectile dysfunction (Landripet & Štulhofer, 2015). On the other hand, Prause and Pfaus (2015) found hours per week spent watching pornography to be unrelated to erectile problems in men, and actually predictive of increased desire for sex with one's partner. Furthermore, Internet pornography use was directly associated with less sexual dysfunction in an online sample of men and women (Blais-Lecours, Vaillancourt-Morel, Sabourin, & Godbout, 2016). It is difficult to put these findings into context given the paucity of research in this area—although some authors argue there is enough preliminary evidence for frequent pornography use to be considered a cause of erectile problems among young men (e.g., Park et al., 2016).

The current paper assessed the following hypotheses and research question across two samples of heterosexual<sup>2</sup> men:

- Hypothesis 1: Consistent with past research, pornography use will be positively associated with a preference for porn-like sex.

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<sup>2</sup> The majority of previous studies in this area focus on heterosexual individuals or heterosexual relational dyads. It may be the case that pornography use differently impacts the romantic relationships of gay and lesbian people. As this paper wishes to investigate the nature of the previously observed associations between pornography use and sexual and relationship satisfaction, we have chosen to focus exclusively on self-identified heterosexual men. Readers who are interested in findings regarding the gay and bisexual men sampled are welcome to contact the first author.

- Hypothesis 2: Consistent with past research, pornography use will be negatively associated with sexual and relationship satisfaction.
- Research Question 1: Can preference for porn-like sex or masturbation frequency account for the associations between pornography use and sexual and relationship satisfaction?

## Study 1

### Method

**Participants and procedure.** Data for this study were taken from a larger online survey into the effects of pornography use.<sup>3</sup> The survey was open to all adult males. Participants were recruited through websites which host psychological studies (e.g., callforparticipants.com, lehmiller.com,<sup>4</sup> facebook.com/psychologyparticipantsresearchers, and socialpsychology.org) and from the student participant pool at the authors' host institution. Student participants (45.7% of final sample) received course credit in exchange for their participation and non-student participants went into a prize draw for a \$50 gift voucher.

A total of 470 completed responses were obtained. Eleven cases were deleted due to duplicate data. Nine cases were deleted due to missing data on key variables (e.g., frequency of pornography use). A further three cases were deleted due to outlying data (see Data Screening below), leaving 447 participants. Of these participants, 326 self-identified as heterosexual. The demographic characteristics of the sample are reported on in Table 9.1.

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<sup>3</sup> A discussion of the sample's self-perceptions around the effects of their pornography use can be found in Miller, Hald, and Kidd (2018).

<sup>4</sup> 45 participants indicated that they accessed the study via lehmiller.com, a blog dedicated to communicating sex research to the general public.

Table 9.1

*Demographic Characteristics of Samples*

Variable	Study 1	Study 2
	<i>M (SD)</i>	<i>M (SD)</i>
Age	27.63 (11.16)	46.76 (14.48)
Religiosity	3.29 (2.46)	3.90 (2.62)
Relationship length (in years) <sup>a</sup>	6.88 (9.00)	17.08 (14.23)
	<i>n (%)</i>	<i>n (%)</i>
Highest level of formal education		
No university study	78 (23.9)	180 (53.7)
Some undergraduate study	102 (31.3)	19 (5.7)
Undergraduate degree	84 (25.8)	71 (21.2)
Some postgraduate study/degree	61 (18.7)	65 (19.4)
Missing	1 (0.3)	-
Country		
Australia/New Zealand	137 (42.0)	335 (100)
Asia	65 (19.9)	-
Europe	23 (7.1)	-
USA	86 (26.4)	-
North America, other	13 (4.00)	-
Other	2 (0.6)	-
Relationship status		
In relationship, cohabiting	102 (31.3)	299 (89.3)
In relationship, not cohabiting	73 (22.4)	36 (10.7)
Not in relationship	151 (46.3)	-
Is this a sexual relationship? <sup>a</sup>		
Yes	156 (89.1)	320 (95.5)
No	19 (10.9)	15 (4.5)

Note.  $N_{\text{Study 1}} = 326$ ,  $N_{\text{Study 2}} = 335$

<sup>a</sup>Limited to partnered men

**Measures. *Demographics and background variables.*** Several demographic and background variables were assessed, including sexual orientation (heterosexual; gay; bisexual; other), age, highest level of formal education (no university study; some undergraduate study; undergraduate degree; some postgraduate study or postgraduate degree), and relationship status (in a relationship, cohabiting; in a relationship, not cohabiting; not in a relationship). Length of relationship, if applicable, was measured in years and months. To assess religiosity, participants were asked to respond to the statement “I am religious” on a 9-point scale, where 1 = *extremely inaccurate* and 9 = *extremely accurate*.

***Sexual preferences.*** Participants' sexual preferences were measured using an instrument designed by E. M. Morgan (2011). The instrument consists of 15 Likert-type items with response options ranging from 1 = *strongly disagree* to 5 = *strongly agree*. All items refer to the prompt "My ideal partner would..." The instrument breaks into three subscales: hot sex (six items, e.g., "try different positions during sex"), kinky sex (five items, e.g., "enjoy using sex toys or props"), and sexual appearance (four items, e.g., "dress in sexy lingerie/underwear"). Scale items were chosen to reflect acts commonly depicted in pornography, based on the instrument author's review of content analyses of pornography. Thus, higher scores on the subscales represent a greater preference for the kinds of sexual acts commonly depicted in pornography. In the current study, Cronbach's alphas for the hot sex, kinky sex, and sexual appearance subscales were .82, .74, and .68 respectively. The latter alpha falls slightly below the generally accepted cut-off value of .70. This subscale was the shortest of the three (four items), and alphas are generally lower for shorter scales (Widaman, Little, Preacher, & Sawalani, 2011).

***Sexual and relationship satisfaction.*** Sexual satisfaction and relationship satisfaction were measured using the Global Measure of Sexual Satisfaction and the Global Measure of Relationship Satisfaction (Lawrance & Byer, 1998). Participants were asked to rate their sexual relationship and overall relationship across three 7-point bipolar scales: good-bad, satisfying-unsatisfying, and valuable-worthless. Items were summed to give an overall sexual satisfaction score ( $\alpha = .94$ ) and an overall relationship satisfaction score ( $\alpha = .92$ ), with higher scores indicating greater satisfaction. Relationship satisfaction items were only presented to those who indicated they were either in a relationship and cohabiting with their partner, or in a relationship, but not cohabiting ( $n = 175$ ). Sexual satisfaction items were only presented to partnered men who indicated that they were in a sexual relationship ( $n = 156$ ).

***Pornography use.*** In the study 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 contains: 1) explicit depictions of genitals, and/or 2) clear and explicit depictions of sexual acts such as vaginal intercourse, anal intercourse, oral sex, masturbation etc.” Participants were asked to indicate if they had viewed pornography ever and in the past six months. Participants who had, were then asked about the frequency of their pornography use over the last six months. This was assessed using an 8-point scale (where 1 = *less than monthly*, 2 = *monthly*, 3 = *fortnightly*, 4 = *1–2 times per week*, 5 = *3–4 times per week*, 6 = *5–6 times per week*, 7 = *daily*, and 8 = *more than once a day*). The same response format was used to assess frequency of masturbation using pornography and frequency of masturbation without the use of pornography over the past six months. Participants who indicated that they had not viewed pornography in the previous six months were assigned a value of zero for frequency of pornography use and frequency of masturbation using pornography. Frequency of masturbation using pornography and frequency of masturbation without pornography were summed to produce an overall frequency of masturbation score.

To explore the context of participants’ pornography use, participants were also asked whether they view pornography more or less often when in a relationship compared to when single (ranging from 1 = *much less often* to 5 = *much more often*) and whether, and how commonly, they view pornography with a sexual partner (response options ranged from *never* to *91–100 percent of the time I view pornography*).

### **Data Screening and Analysis**

Missing data analysis was performed on pertinent scale items. All scale items (e.g., items on the Global Measure of Sexual Satisfaction) were missing fewer than 2% of responses. This degree of “missingness” is unlikely to bias data (Graham, 2009). Expectation maximisation was used to obtain estimates for missing scale item values. Some missing

responses (7.7%) were observed for frequency of masturbation without the use of pornography. Pairwise deletion was utilised for analyses involving masturbation frequency scores. Mahalanobis distances were generated to screen for multivariate outliers. Three multivariate outliers were identified and deleted (using an  $\alpha$  of .001; Tabachnick & Fidell, 2013).

## Results

**Pornography use.** Over 90% of the total sample reported having seen pornography at some point (96.9%) and in the past six months (90.8%). Among those who had seen pornography in the past six months, median frequency of pornography use over the past six months was 3–4 times per week. Median frequency of masturbation using pornography was also 3–4 times per week. Median frequency of masturbation without pornography was fortnightly.

Almost half (51.9%) of participants reported that when in a relationship they view pornography less often, or much less often, compared to when they are single, 33.7% indicated that their pornography viewing frequency does not change when in a relationship, and 14.4% reported viewing pornography more often, or much more often, when in a relationship. Relationship status groups (in a relationship, cohabiting; in a relationship, not cohabiting; not in a relationship) were also compared on pornography use frequency and masturbation frequency using ANOVA. These groups were not found to significantly differ in terms of frequency of pornography use,  $F(2, 323) = 1.55, p = .214, \eta^2 = .01$ . Similarly, relationship status groups did not differ in terms of frequency of masturbation,  $F(2, 291) = 0.87, p = .419, \eta^2 = .01$ .

Partnered pornography use was rare. Over half (54.0%) of participants indicated that they had never viewed pornography with a sexual partner. A further 34.0% reported viewing pornography with a sexual partner very rarely (1-10% of the occasions they view

pornography). Only 1.3% of participants reported exclusive, or almost exclusive (> 90% of the occasions they view pornography), partnered pornography use.

**Hypotheses 1 and 2.** Table 9.2 presents Pearson correlation coefficients between study variables among the heterosexual men sampled (all tests were one-tailed). Consistent with H1, pornography use was significantly positively associated with all three sexual preferences subscales: hot sex, kinky sex, and sexual appearance. The test of H2 was mixed. Pornography use frequency was significantly negatively associated with sexual satisfaction. However, pornography use frequency was orthogonal to relationship satisfaction.

**Research Question 1.** The zero-order correlations reported in Table 9.2 were used to probe RQ1. If the previously observed negative associations between pornography use and sexual and relationship satisfaction are the result of an increased preference for porn-like sex, we would expect to observe a negative correlation between sexual preference scores and sexual and relationship satisfaction. However, none of the sexual preferences subscales (hot sex, kinky sex, and sexual appearance) showed a significant negative correlation with sexual or relationship satisfaction.

Table 9.2

*Correlations, Means, and Standard Deviations for Study 1 Variables*

Variable	1	2	3	4	5	6	7	<i>M (SD)</i>
1. Porn use frequency	—	.64***	.36***	.36***	.24**	-.18*	-.07	4.47 (2.25)
2. Masturbation frequency		—	.20***	.21***	.05	-.17*	-.05	7.64 (2.92)
3. Hot sex			—	.57***	.68***	-.04	.03	23.97 (3.74)
4. Kinky sex				—	.60***	-.03	.02	15.82 (3.96)
5. Sexual appearance					—	-.02	>.01	14.37 (2.88)
6. Sexual satisfaction						—	.59***	17.84 (3.53)
7. Relationship satisfaction							—	18.27 (3.54)

*Note.* *df* = 142–324; all tests one-tailed\**p* < .05; \*\**p* < .01; \*\*\**p* < .001



Similarly, if the negative associations between pornography use and sexual and relationship satisfaction are driven primarily by frequent masturbation, we would expect masturbation frequency to be negatively associated with sexual and relationship satisfaction. We would also expect any significant relationship between pornography use frequency and sexual or relationship satisfaction to diminish once masturbation frequency is controlled for. Masturbation frequency did in fact show a significant negative correlation with sexual satisfaction. Furthermore, the partial correlation between pornography use frequency and sexual satisfaction, controlling for masturbation frequency, was non-significant,  $r(141) = -.10, p = .124$ , in contrast to the significant zero-order correlation between pornography use frequency and sexual satisfaction,  $r(152) = -.18, p = .012$ . However, masturbation frequency was orthogonal to relationship satisfaction.

### Summary

Consistent with past research, a significant negative association was observed between frequency of pornography use and sexual satisfaction. However, contrary to expectations, pornography use was unrelated to relationship satisfaction among the sample.

A major goal of this study was to determine if preference for porn-like sex or masturbation frequency can account for the association between pornography use and sexual and relationship satisfaction. While pornography use frequency was associated with a greater preference for the kinds of sexual practices commonly depicted in pornography, this was unrelated to sexual or relationship satisfaction among the sample. Conversely, masturbation frequency was significantly negatively associated with sexual satisfaction (but orthogonal to relationship satisfaction). Additionally, the relationship between pornography use frequency and sexual satisfaction appeared to diminish once masturbation frequency was controlled for.

One limitation of this study is its use of a convenience sample. Self-selection may have biased the sample to be unrepresentatively sexually liberal. Furthermore, the average

age of the sample was relatively young. Both of these factors may impact the effect of pornography on sexual and relationship satisfaction. For example, younger, sexually-liberal men would be more likely to have younger, sexually-liberal partners and younger sexually-liberal partners may be more likely to meet porn-driven sexual preferences (hence the lack of a negative association between pornographic sexual preferences and sexual satisfaction).

Another possible limitation of the study is the use of E. M. Morgan's (2011) sexual preference scale. Although scale items were selected to reflect sexual practices commonly depicted in pornography, it could be argued that the instrument taps desire for sexual variety more generally, as opposed to desire for pornographic sex specifically. To account for these limitations, the hypotheses and research question were assessed in a second more representative sample of partnered men, while utilizing a more direct measure of preference for pornographic sex in addition to E. M. Morgan's (2011) sexual preferences scale.

## **Study 2**

### **Measures**

**Participants and procedure.** A commercial survey panel (SurveyGizmo) was utilized to collect a sample of Australian men currently in romantic relationships. Participants received cash incentives for their participation. Time spent on the survey was recorded. Participants who completed the survey too quickly were iteratively disqualified, as were duplicate responses (as indicated by IP address), until 400 responses were obtained. Twenty-two participants were deleted for data quality reasons (see Data Screening and Analysis below). Of the remaining 378 participants, 88.6% self-identified as heterosexual, leaving a final *N* of 335. The demographic characteristics of the final sample are reported in Table 9.1.

**Measures. *Demographics and background variables.*** The same demographic and background variables were measured as in Study 1.

**Sexual preferences.** As in Study 1, E. M. Morgan's (2011) instrument was used to measure participants' preferences for the sexual acts commonly depicted in pornography. Scores on the three subscales—hot sex, kinky sex, and sexual appearance—were all found to have acceptable internal reliability (Cronbach's  $\alpha = .83, .80,$  and  $.72$  respectively). Correlations between subscales were positive and large (correlations ranged from  $.54$  to  $.66$ , see Table 9.3). Accordingly, in the analysis of RQ1 subscale scores were summed to produce an overall preference for porn-like sex score, with higher values indicating a greater preference for the sexual practices depicted in pornography (Cronbach's  $\alpha = .90$  for this composite scale). In addition, participants' preference for porn-like sex was assessed more directly with the following original item: "I would like the sex I have in real-life to be like the sex in pornography." Response options ranged from 1 = *strongly disagree* to 7 = *strongly agree*.

**Sexual and relationship satisfaction.** Once again, the Global Measure of Sexual Satisfaction and the Global Measure of Relationship Satisfaction (Lawrance & Byer, 1998) were utilised. Scores on these scales showed good internal reliability (Cronbach's  $\alpha = .94$  and  $.88$  respectively).

**Pornography use.** The same approach as in Study 1 was taken to assessing frequency of pornography use and masturbation frequency over the past six months.<sup>5</sup>

### Data Screening and Analysis

Mahalanobis distance figures were generated to screen for multivariate outliers. Eleven multivariate outliers were detected and deleted (using an  $\alpha$  of  $.001$ ; Tabachnick & Fidell, 2013). A further 11 participants were deleted for impossible or inconsistent responses (e.g., if reported frequency of masturbation using pornography exceeded reported frequency of pornography use). Missing data was minimal in the second sample ( $< 1\%$  for all variables).

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<sup>5</sup> In Study 1 participants were not given an option to indicate that they had not masturbated without pornography in the previous six months (the lowest response option was *less than monthly*). This was corrected in the second study. Accordingly, masturbation frequency scores cannot be directly compared across studies.

Expectation maximisation was used to obtain estimates for missing sexual preference scale items.

Mediation analysis was used to assess RQ1. This was done via the PROCESS (version 3.0) macro for SPSS (Hayes, 2018). PROCESS estimates indirect effects and then bootstraps confidence intervals around these point estimates. The indirect effect is significant if this confidence interval band does not contain zero. Models with multiple mediators were specified (see below). Severe collinearity between predictors in multiple mediator models can affect sampling variance and impact the width of confidence intervals (Hayes, 2018). Accordingly, VIF values were generated (entering all predictors and control variables) to assess for collinearity. VIF values were small ( $< 2.5$  for all predictors), falling well below the commonly recommended value of 10, and also the more conservative cut-off value of 5 (Montgomery, Peck, Vining, & Vining, 2012).

## Results

**Pornography Use.** Just over two-thirds (70.7%) of the sample reported having viewed pornography in the last six months. Among those who had viewed pornography in the previous six months, median frequency of pornography use was 1–2 times per week. Around two-thirds (63.0%) of the sample reported having masturbated using pornography in the previous six months. Among those who had, median frequency of masturbation using pornography was 1–2 times per week. Sixty-six percent of participants reported having masturbated without pornography in the previous six months. Among this group, median frequency of masturbation without pornography was monthly.

**Hypotheses 1 and 2.** Table 9.3 presents correlations between continuous study variables. As pornography use frequency was severely positively skewed (due to the large number of participants who indicated that they had not accessed pornography in the previous

six months) Spearman correlation coefficients are reported in place of Pearson correlation coefficients. All tests were one-tailed.

As can be seen, consistent with H1, frequency of pornography use was significantly positively associated with all three sexual preferences subscales: hot sex, kinky sex, and sexual appearance. Frequency of pornography use also showed a significant positive association with the single item measure of preference for porn-like sex.

In line with H2, the associations between frequency of pornography use and sexual satisfaction and frequency of pornography use and relationship satisfaction were negative and significant.

**Research Question 1.** RQ1 asks whether preference for porn-like sex or masturbation frequency can account for pornography's association with sexual and relation dissatisfaction. To assess this, two parallel multiple mediator models were run: the first assessing the relationship between pornography use frequency and sexual satisfaction, and the second assessing the relationship between pornography use frequency and relationship satisfaction. In both models three mediators were specified: masturbation frequency, responses on the single-item pornographic sexual preference index, and responses on the multi-item pornographic sexual preference index (which, as discussed above, was calculated by summing hot sex, kinky sex, and sexual appearance scores). Multiple mediator models are most useful when mediators are correlated, as multiple mediator models quantify the effect of each mediator holding constant the effect of the other mediators (Hayes, 2018).

Past research suggests several possible confounds of the relationships being tested. Relationship length has been found to negatively correlate with sexual satisfaction (Schmiedeberg & Schröder, 2016), and research suggests that religiosity may impact the nature of the association between pornography use and relational outcomes (Perry & Whitehead, 2019). Additionally, age was found to correlate with a number of the model

predictors in the preliminary analysis (see Table 9.3). Accordingly, relationship length, religiosity, and age were entered into the models as control variables.

Due to the severe skew in frequency of pornography use, this variable was trichotomized into three roughly equal groups: a *no consumption* group ( $n = 98$ ) consisting of those who had not viewed pornography in the past six months; a *low consumption* group ( $n = 108$ ) consisting of those who had consumed pornography in the past six months, but did so less than weekly; and a *high consumption* group ( $n = 129$ ) composed of those who consumed pornography at least weekly over the past six months. This trichotomized consumption variable was treated as categorical in PROCESS. Given the ordinal nature of the variable, sequential group coding was utilized (Hayes & Preacher, 2014; Hayes & Montoya, 2017). Under this coding system “relative direct and indirect effects can be interpreted as the effects of membership in one group relative to the group one step sequentially lower in the ordered system” (Hayes & Preacher, 2014, p. S9). That is, the indirect effect of low pornography use on sexual or relationship satisfaction would be the indirect effect of low pornography use relative to no pornography use. Similarly, the indirect effect of high pornography use on satisfaction would be the indirect effect relative to low pornography use (rather than no pornography use, as would be the case if using indicator group coding). Trichotomizing pornography use frequency and then utilizing sequential coding in this way is compatible with Wright, Bridges, Sun, Ezzell, and Johnson’s (2018) argument that the association between pornography use and sexual satisfaction is a curvilinear relationship in which pornography use has little, to no, negative impact on sexual satisfaction until a viewing threshold is reached (around monthly in the study), with additional increases in viewing frequency beyond this threshold resulting in disproportionately larger negative effects. A conceptual diagram of the models tested is presented in Figure 9.1.

Table 9.3

*Correlations, Means, and Standard Deviations for Study 2 Variables*

Variable	1	2	3	4	5	6	7	8	9	10	11	<i>M (SD)</i>
1. Porn use freq.	–	.81***	.35***	.51***	.45***	.42***	–.10*	–.19***	–.33***	.04	–.39***	2.52 (2.22)
2. Masturbation freq.		–	.36***	.51***	.45***	.34***	–.15**	–.22***	–.29***	–.05	–.39***	1.93 (1.71)
3. Hot sex			–	.54***	.66***	.37***	.19***	.05	–.24***	–.02	–.26***	21.98 (4.60)
4. Kinky sex				–	.66***	.49***	–.01	–.13**	–.26***	.01	–.30***	13.93 (4.52)
5. Sex appearance					–	.40***	.11*	–.08	–.33***	–.01	–.39***	13.56 (3.33)
6. Single-item, preference for porn-sex						–	< .01	–.14**	–.14**	.14**	–.16**	3.85 (1.70)
7. Sex satisfaction							–	.61***	–.19***	.09	–.11*	16.17 (4.36)
8. Relationship satisfaction								–	.08	–.07	.09	18.36 (2.84)
9. Relationship length									–	–.09	.69***	17.08 (14.22)
10. Religiosity										–	–.06	3.90 (2.62)
11. Age											–	46.76 (14.48)

*Note.* *df* = 317–333; all tests one-tailed; Spearman correlations used in place of Pearson correlations due to non-normal distribution of pornography use frequency

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

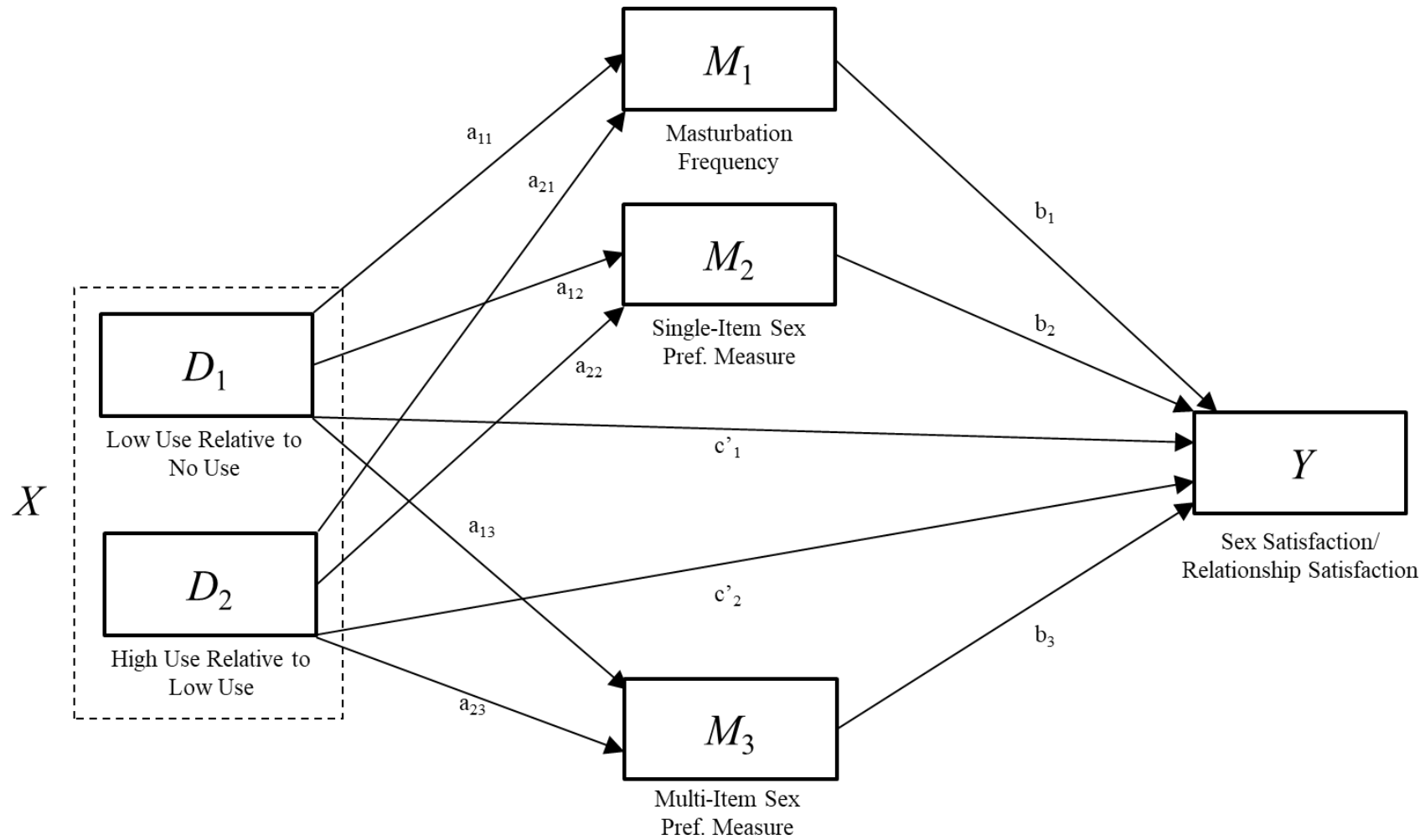


Figure 9.1. Conceptual diagram for models assessing the effect of pornography use on sexual satisfaction (model 1) and relationship satisfaction (model 2) through the three mediators. The models controlled for age, relationship length, and religiosity (these variables have been omitted from the figure to save space).



Table 9.4

*Relative Total, Direct and Indirect Effects (and their 95% Confidence Intervals) for Multiple Mediator Models assessing the Effect of Pornography Use Frequency on Sexual Satisfaction (Model 1) and Relationship Satisfaction (Model 2), Controlling for Age, Relationship Length and Religiosity*

Model	Total effect	Direct effect	Indirect effect: masturbation frequency	Indirect effect: single-item sexual preference	Indirect effect: multi-item sexual preference
Model 1: porn use → sexual satisfaction					
Low relative to no use	<b>-1.87 [-3.13, -0.61]</b>	<b>-1.55 [-2.89, -0.22]</b>	<b>-0.47 [-0.92, -0.07]</b>	-0.17 [-0.57, 0.17]	<b>0.32 [0.06, 0.72]</b>
High relative to low use	-0.15 [-1.28, 0.97]	0.40 [-0.95, 1.57]	<b>-0.91 [-1.72, -0.14]</b>	-0.09 [-0.34, 0.09]	<b>0.44 [0.11, 0.88]</b>
Model 2: porn use → relationship satisfaction					
Low relative to no use	<b>-1.51 [-2.31, -0.72]</b>	<b>-1.12 [-1.96, -0.27]</b>	<b>-0.39 [-0.74, -0.08]</b>	-0.17 [-0.41, 0.04]	0.16 [-0.01, 0.36]
High relative to low use	0.08 [-0.64, 0.80]	0.72 [-0.14, 1.68]	<b>-0.71 [-1.33, -0.15]</b>	-0.10 [-0.28, 0.02]	0.17 [-0.01, 0.41]

*Note.*  $N_{\text{model 1}} = 320$ ,  $N_{\text{model 2}} = 335$ ; 95% confidence intervals based on 5000 resamples; significant effects in bold

Relative direct and indirect effects for each model are reported in Table 9.4. In terms of the model predicting sexual satisfaction, the relative indirect effects of pornography use on sexual satisfaction through masturbation frequency were both negative and significant, meaning that, among the sample, greater pornography use was associated with greater masturbation frequency ( $a_{11} = .95, p < .001$ ;  $a_{21} = 1.84, p < .001$ ), which in turn was associated with lower sexual satisfaction ( $b_1 = -.49, p = .023$ ). The relative indirect effects of pornography use on sexual satisfaction through the multi-item sexual preferences scale were both significant. However, the direction of these effects was positive. Pornography use was associated with a more pronounced preference for the kinds of sexual acts depicted in pornography ( $a_{13} = 3.85, p = .006$ ;  $a_{23} = 5.28, p < .001$ ), which in turn was associated with *greater* sexual satisfaction ( $b_3 = .08, p = .003$ ). The single-item sexual preference measure was not found to mediate the relationship between pornography use and sexual satisfaction. The omnibus direct effect of pornography use on sexual satisfaction was non-significant,  $\Delta R^2 = .02, F(2, 311) = 2.64, p = .073$ , whereas the omnibus total effect was significant,  $\Delta R^2 = .04, F(2, 314) = 5.95, p = .003$ . The model accounted for 9.67% of the variance in sexual satisfaction.

Neither of the sexual preference scales were found to mediate the relationship between pornography use and relationship satisfaction. As in the first model, the relative indirect effects of pornography use on relationship satisfaction through masturbation frequency were both negative and significant. Again, greater pornography use was associated with more frequent masturbation ( $a_{11} = 1.00, p < .001$ ;  $a_{12} = 1.82, p < .001$ ), which in turn was predictive of lower relationship satisfaction ( $b_1 = -.39, p = .005$ ). Both the omnibus direct effect,  $\Delta R^2 = .02, F(2, 326) = 4.17, p = .016$ , and total effect,  $\Delta R^2 = .05, F(2, 329) = 8.42, p < .001$ , were significant. The model accounted for 8.98% of the variance in relationship satisfaction.

It is possible that the single-item sexual preference measure was not found to mediate the relationships between pornography use and sexual or relationship satisfaction due to the simultaneous inclusion of the multi-item sexual preference scale in the models. Accordingly, the models were rerun excluding the multi-item sexual preferences measure. However, the single-item sexual preference measure was still not found to be a significant mediator in either model.

### **Summary**

Pornography use was positively correlated with preference for the kinds of sexual practices commonly depicted in pornography (as measured by the three sexual preference subscales) among the sample of heterosexual, Australian men in romantic relationships. Furthermore, pornography use was positively associated with the single-item sexual preference measure (“I would like the sex I have in real-life to be like the sex in pornography”). As expected, a significant negative correlation was observed between pornography use and sexual satisfaction. Unlike in Study 1, pornography use was also negatively predictive of relationship satisfaction.

The data were not consistent with the idea that pornography use has a negative indirect effect on sexual or relationship satisfaction through its influence on sexual preferences, when controlling for the other model variables. Interestingly, the indirect effect of pornography use on sexual satisfaction through the multi-item sexual preference measure was found to be positive. Conversely, pornography use was found to have a significant indirect effect on both sexual and relationship satisfaction through masturbation frequency, when controlling for the other model variables.

### **Discussion**

This research utilized two samples of heterosexual men to explore the nature of the associations between pornography use, preference for porn-like sex, masturbation, and sexual

and relationship satisfaction. Consistent with a recent meta-analysis (Wright, Tokunaga, et al., 2017), pornography use showed a modest negative association with sexual satisfaction in both studies. The findings around relationship satisfaction were mixed. Pornography use was negatively associated with relationship satisfaction in Study 2, but unrelated to relationship satisfaction in Study 1. The reason for this discrepancy is unclear. However, the first sample tended to skew younger, thus an age effect may be at play. This may also explain discrepancies in the frequency of pornography use among the two samples. Indeed, an analysis utilizing nationally representative survey data from the US suggests that pornography use does diminish with age (Price, Patterson, Regnerus, & Walley, 2016).

Consistent with E. M. Morgan's (2011) findings, frequency of pornography use was moderately to highly positively correlated with a preference for the sexual acts commonly depicted in pornography in both studies. Furthermore, greater frequency of pornography use was predictive of greater agreement with the statement "I would like the sex I have in real-life to be like the sex in pornography." Adopting a sexual script perspective (Wright & Bae, 2016), it could be argued that these findings indicate that pornography influences men's perceptions of what is normal and desirable within a sexual relationship. However, due to the correlational study design, it is not possible to rule out other explanations (e.g., preference for porn-like sex causing pornography use, or this relationship being the result of an unmeasured third variable such as sexual liberalism).

As outlined in the Introduction, it has been argued that pornography use negatively impacts sexual satisfaction by creating unrealistic expectations of sexual relationships (expectations which then go unmet). Both sets of data were inconsistent with the idea that pornography use reduces sexual satisfaction in this way. In Study 1, scores on the three pornographic sexual preference subscales (hot sex, kinky sex, and sexual appearance) were unrelated to sexual and relationship satisfaction. In Study 2, neither measure of preference for

porn-like sex were found to negatively mediate the relationships between pornography use frequency and sexual or relationship satisfaction. In fact, pornography use was found to have a significant positive indirect effect on sexual satisfaction through the multi-item sexual preference measure. This unexpected finding raises an important question: Why did the indirect effect of pornography use on sexual satisfaction differ when mediated via the multi-item and single-item measure of preference for porn-like sex when, ostensibly, these instruments both measure desire for pornographic sex? One possible explanation is that the single-item sexual preferences scale ("I would like the sex I have in real-life to be like the sex in pornography") more closely assesses preference for porn-like sex over real-world sex, while high scores on E. M. Morgan's (2011) scale do not necessarily indicate a disinterest in real-world sex. E. M. Morgan's (2011) scale assesses interest in various sexual activities frequently depicted in pornography. In this way it may tap preference for sexual variety generally, in addition to measuring interest in porn-like sex. It is worth noting that while sexual preference subscales scores were all positively correlated with the single-item sexual preference measure, these correlations were not exceeding large, suggesting that the measures may be assessing related, but distinct, constructs. With this distinction between measures in mind, the finding that pornography use had a positive indirect effect on sexual satisfaction through the multi-item sexual preferences scale is more readily understandable. It seems plausible that pornography use could bolster interest in a greater variety of sexual behaviors, and that this may, in turn, increase sexual satisfaction (e.g., if new sexual practices are incorporated into one's sexual relationship in a way that is enjoyable for both partners). In support of this, qualitative research indicates that many porn users believe that pornography has been a valuable source of sexual ideas and has contributed positively to sexual experimentation within their relationships (Kohut et al., 2017).

These issues aside, neither study found evidence for the notion that pornography use undermines sexual satisfaction by promoting a preference for porn-like sex. There are several possible explanations for this. Porn users may desire their real-world sex to be more like the sex depicted in pornography, but not feel any less sexually satisfied if their porn-induced sexual preferences are not met by their partners (perhaps because they recognize that pornography is a fantasy). Alternatively, it may be the case that most porn users' romantic partners are accommodating of porn-induced sexual preferences. As partner acceptance of one's sexual preferences was not measured, this cannot be assessed.

Perhaps unsurprisingly, pornography use frequency was highly positively correlated with masturbation frequency in both samples, suggesting that pornography is commonly used for masturbation—a finding consistent with existing research (Böhm et al., 2014; Carnevali et al., 2015). A major goal of the current research was to understand the degree to which masturbation may drive the negative associations between pornography use and sexual and relationship satisfaction.

In the Introduction we suggested that access to pornography allows men to masturbate more frequently than they otherwise would, that frequent masturbation may partially suppress arousal toward one's partner (due to post-ejaculatory refractory effects), and that this suppression of arousal may result in sexual or relationship dissatisfaction. This argument would be undermined if it was found that the average porn user consumes pornography primarily when partnered sex is unavailable. However, in Study 1, relationship status groups were not found to differ in terms of pornography use frequency or masturbation frequency. Furthermore, roughly half of participants indicated that when in a relationship they sustain the same level of pornography use or increase their usage of pornography. The results of Study 1 are inconsistent with the idea that men only use pornography when partnered sex is

unavailable. Rather, it appears that many men use pornography (and by extension, masturbate) *in addition to* having sex with their partners.

Consistent with the notion that frequent masturbation undermines sexual satisfactions, masturbation frequency was significantly negatively associated with sexual satisfaction in Study 1. Furthermore, the relationship between pornography use frequency and sexual satisfaction diminished once masturbation frequency was controlled for. Study 2 data lend more credence to the notion that masturbation plays an integral role in the relationships between pornography use and sexual and relationship satisfaction. The data were consistent with a model in which pornography use undermines sexual and relationship satisfaction through increased masturbation frequency. However, it should be acknowledged that, due to the cross-sectional study design, direction of causation cannot be determined with certainty. It is also possible that sexual or relationship dissatisfaction causes an increase in solitary masturbation, which then causes men to seek out pornography to facilitate this masturbation. Alternatively, more frequent masturbation may result in more frequent pornography use, while also independently negatively impacting sexual and relationship satisfaction. Nonetheless, we feel the findings of Studies 1 and 2, when considered alongside extant research connecting masturbation frequency to poorer sexual arousal (see Introduction), provide enough evidence to warrant exploring the relationship between pornography use, frequency of masturbation, and sexual and relationship satisfaction in a longitudinal context.

Four limitations should be considered when parsing the research findings. First, the use of a convenience sample for Study 1 may have introduced self-selection bias in a way that undermined the generalizability of results. A commercial panel service was utilized in the second study to avoid this self-selection problem as much as possible. It should be noted that findings were largely consistent between Studies 1 and 2.

Second, as mentioned above, the use of a cross-sectional research design undermined our ability to be definitive regarding direction of causation. This being said, the hypotheses tested were conceptualised based on a literature which does include longitudinal research designs.

Third, several newly identified moderators and mediators of the relationship between pornography use and relational outcomes were not controlled for in the present research. For example, Wright, Sun et al.'s (2017) recent path analysis underscores the role that perceiving pornography to be a valid source of sexual information plays in the relationship between pornography use and sexual dissatisfaction, and research conducted by Blais-Lecours et al.'s (2016) highlights the importance of pornography-use-related distress to sexual satisfaction. Work by Perry (2018) suggests that one's opinion on the morality of pornography may moderate the relationship between pornography use and relationship quality, and, as mentioned above, it is possible that the degree to which one's sexual partner is accommodating of one's sexual preferences may act to moderate the indirect effect of pornography use on sexual satisfaction through preference for porn-like sex.

Forth, frequency of pornography use was assessed in a way that did not separate solitary pornography use from use with one's romantic partner. L. Campbell and Kohut (2017) have called for investigators to pay greater attention to the context of pornography use within relationships. This stems from a growing body of research suggesting that, unlike solitary pornography use, coupled pornography use may not be associated with poorer relational outcomes (Kohut, Balzarini, Fisher, & Campbell, 2018; Maddox, Rhoades, & Markman, 2011; Træen & Daneback, 2013; Willoughby, Carroll, Busby, & Brown, 2016; Yucel & Gassanov, 2010). However, the consistent findings around the sizeable gender gap in the use of pornography (see Hald, 2006; Petersen & Hyde, 2010) would suggest that partnered pornography use is relatively uncommon, at least when compared to men's solitary



use. Furthermore, a recent survey of heterosexual couples (Carroll, Busby, Willoughby, & Brown, 2017) found that women commonly reported couple-based pornography use, whereas men were much more likely to report always viewing pornography alone. In line with these findings, in Study 1 partnered pornography use was found to be relatively rare (less than 2% of the sample indicated that they always, or almost always, view pornography with a sexual partner). Nonetheless, future studies may include more detailed measures of pornography use to enable researchers to separate the effects of partnered and solitary use. Furthermore, for the reasons discussed above, future studies may also seek to measure perceptions of pornography as a source of sexual information, pornography-use-related distress, perceptions of the morality of pornography, and partner acceptance of one's sexual preferences.

Despite these limitations, the studies provide researchers and clinicians some evidence as to the mechanisms underpinning pornography's impact on sexual and relationship dissatisfaction. While the data are entirely consistent with the idea that pornography promotes a desire to engage in the kinds of sexual practices commonly depicted in pornography, this does not appear to result in feelings of sexual or relationship dissatisfaction. In fact, this may have a positive impact on sexual relationships by promoting an interest in a diversity of sexual activities. Conversely, the data suggests that frequent masturbation plays a key role in the associations between pornography use and sexual and relationship dissatisfaction

## Chapter 10: Other Findings of Survey 1

The following chapter outlines Survey 1 findings which were omitted from the manuscript chapters but are nonetheless pertinent to this thesis. The chapter is divided into four parts. First, descriptive statistics in relation to the use of pornography are discussed. This includes results relating to the age at which participants first started accessing pornography, media used to access pornography, genres of pornography accessed by participants, and an analysis of whether pornography consumption differs by sexual orientation. These findings relate to the topics covered in the literature review presented in Chapter 2. Second, the self-perceived effects of pornography use among gay and bisexual men are outlined. Third, results relating to beliefs about pornography's effect on others/society are then presented. These findings are discussed with reference to the self-perceived effects of pornography. Finally, results relating to pornography's impact on men's self-reported likelihood of rape and use of sexual force are outlined. While the implications of each set of findings are briefly discussed here, their connection to the rest of this thesis is further elaborated upon in Chapter 12.

### Consumption of Pornography

#### Age

Participants were asked to indicate (if applicable) the age at which they first viewed pornography (it was specified that this included accidental exposure) and the age at which they first started to regularly view pornography (defined as viewing at least once a month over a six-month period). Average age at first use of pornography was 12.95 years ( $SD = 3.12$ ). Average age at the start of regular use was considerably later, at 16.99 years ( $SD = 4.43$ ).

A small positive correlation was detected between participants' chronological age and their age at first use of pornography,  $r(397) = .11, p = .024$ . Chronological age was found to

correlate strongly with age at start of regular use,  $r(331) = .61, p < .001$ , with older participants generally having started regularly viewing pornography later in life.

### **Media Used to Access Pornography**

Participants were asked to indicate which media they had used to access pornography in the past six months (PCs/laptops,<sup>1</sup> smart phones/tablets, magazines, DVDs/VHS tapes, erotic literature). Participants were also asked which media they most utilised to access pornography. These questions were limited to those who indicated that they had accessed pornography in the past six months ( $n = 422$ ).

Table 10.1 reports on the methods used by the sample to access pornography in the past six months. As can be seen, almost all participants had accessed pornography via a PC or laptop, and a significant number had used either a tablet or smart phone. Magazines, DVDs/VHS tapes, and erotic literature were less commonly utilised. Interestingly, more men indicated that they had read erotic literature than read pornographic magazines or viewed pornographic DVDs/VHS tapes. PCs and laptops were the most commonly utilised technologies.

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<sup>1</sup> In hindsight, Apple users may have found this option confusing. It would have been more appropriate to word the category “PCs/laptops/Mac computers.”

Table 10.1

*Media Used to Access Pornography in the Last 6 Months*

Medium	% (n/cell)
Internet (PC/laptop)	
Yes	84.8 (358)
No	15.2 (64)
Internet (smart phone/tablet)	
Yes	63.0 (266)
No	37.0 (156)
Magazines	
Yes	7.3 (31)
No	92.7 (391)
DVDs/VHS tapes	
Yes	12.3 (52)
No	87.7 (370)
Erotic Literature	
Yes	20.2 (87)
No	79.4 (335)
Media used most	
Internet (PC/laptop)	63.0 (266)
Internet (smart phone/tablet)	32.2 (136)
Everything else	4.7 (20)

Note. *N* = 422. Numbers in parentheses represent *n/cell*.

**Pornography Consumption by Genre**

Participants were also asked about their pornography use with reference to specific genres. The genres chosen were based on those listed on popular pornographic tube-sites such as Pornhub (<https://www.pornhub.com>) and Youporn (<https://www.youporn.com>).

Participants were asked to tick a checkbox for every genre they had ever viewed and every genre they regularly view. Many of the genres listed are equally applicable to men of all sexual orientations (e.g., *amateur* and *Asian performers*). However, it was expected that use of some genres would naturally differ between men of different sexual orientations (e.g., *vaginal sex*). As such, results are broken down by sexual orientation.

From Table 10.2 it can be seen that a large proportion of participants reported having seen almost every genre listed at some point. Among heterosexual men the ten most common regularly-viewed genres were: *heterosexual sex*; *vaginal sex*; *performers in their 20s*; *oral sex performed on a man*; *ejaculation onto a partner*; *oral sex performed on a woman*; *European*

*performers*<sup>2</sup>; *breast size*; *gay female*; and *amateur*. The ten least common regularly-viewed genres were: *age disparity, older men and younger women*; *BDSM, same sex partners*; *spanking*; *mature performers (50+)*; *Middle Eastern performers*; *gay male*; *forced sex*; *rape simulation*; *foot play*; and *transgender*.

Among gay and bisexual men the top ten most common regularly-viewed genres were: *oral sex performed on a man*; *anal sex*; *gay male*; *performers in their 20s*; *heterosexual*; *ejaculation onto a partner*; *group sex (e.g., threesomes, orgies)*; *European performers*; and *amateur*. The ten least common regularly-viewed genres were: *foot play*; *Middle Eastern performers*; *rape simulation*; *forced sex*; *BDSM, male/s dominating female/s*; *age disparity, older men and younger women*; *spanking*; *age disparity, younger men and older women*; *cartoon/hentai*; *buttock size*; and *overall size (e.g., petite or voluptuous performers)*.

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<sup>2</sup> In hindsight, *European performer* may have been a confusing category for some participants. From the wording it is unclear as to whether *European* refers to performers from Europe or any White performer. However, many popular tube-sites categorise their videos using the term *European* rather than *White*.

Table 10.2

*Consumption of Pornography by Genre (in %)*

	Have viewed		Regularly view <sup>a</sup>	
	Heterosexual	Gay/Bisexual	Heterosexual	Gay/Bisexual
Physical attributes				
Breast size	65.9	47.8	39.7	21.7
Buttock size	58.4	40.6	27.1	17.4
Hair colour (e.g., blondes, brunettes, redheads)	64.7	59.4	32.8	21.7
Overall size (e.g., petite or voluptuous performers)	56.5	65.2	35.6	43.5
Penis size	40.7	59.4	11.0	39.1
Age				
Age disparity, younger men and older women	45.4	37.7	13.9	14.5
Age disparity, older men and younger women	48.9	34.8	9.1	13.0
“Barely legal” (e.g., performers who are 18)	68.1	65.2	30.6	30.4
Performers in their 20s	63.4	71.0	60.3	63.8
Performers in their 30s-50s	59.6	68.1	29.7	33.3
Mature performers 50+	39.1	37.7	7.3	17.4
Ethnicity				
Asian performers	64.7	72.5	30.3	18.8
Black performers	62.5	76.8	11.7	17.4
European performers	64.0	73.9	41.0	46.4
Latin performers	66.6	68.1	25.2	20.3
Middle Eastern performers	48.3	50.7	7.6	5.8
Inter-racial performers	61.2	71.0	15.5	29.0
Sexual orientation				
Heterosexual	56.5	68.1	74.4	53.6
Gay female	64.4	50.7	39.4	24.6
Gay male	29.0	72.5	6.0	63.8
Transgender	31.7	47.9	5.7	17.5
Sex acts				
Anal sex	71.0	73.9	26.2	65.2
Ejaculation onto a partner	65.0	82.6	42.6	49.3
Group sex (e.g., threesomes, orgies)	68.1	79.7	38.5	49.3
Oral sex performed on a woman	65.9	65.2	41.3	30.4
Oral sex performed on a man	61.2	69.6	48.9	73.9
Manual stimulation of a partner (e.g., “hand-jobs”)	63.4	73.9	22.7	34.8
Solo masturbation	59.9	73.9	24.0	24.6
Other non-penetrative sex (e.g., “tit-jobs”)	63.7	65.2	19.2	15.9
Vaginal sex	61.5	63.8	66.9	42.0
Fetish				
BDSM, female/s dominating male/s	44.2	43.5	12.9	18.8
BDSM, male/s dominating female/s	50.5	40.6	12.0	13.0
BDSM, same sex partners	36.0	53.6	8.5	26.1
Bukkake (a group of men ejaculating onto a partner)	49.5	60.9	11.0	17.4
Foot play	29.0	37.7	5.4	2.9

Spanking	44.8	56.5	8.8	11.6
Rough sex	54.6	58.0	17.0	24.6
Rape simulation	34.4	40.6	5.4	5.8
Forced sex	40.1	43.5	5.7	11.6
Other				
Amateur	56.2	59.4	13.2	14.5
Cartoon/hentai	66.9	75.4	38.2	44.9

*Note.* Question limited to those who had viewed pornography in the past six months,  $n_{\text{heterosexual}} = 317$ ,  $n_{\text{gay/bisexual}} = 69$ .

<sup>a</sup>Defined for participants as at least once/month

Participants were also asked specifically about their use of violent pornography and pornography which they feel “humiliates the performers involved.” As a reminder, violent pornography was defined for participants as “pornography depicting violent acts, e.g., whipping or simulations of forced sex.” Here participants were asked to select either *yes*, *no* or *unsure*, rather than being presented with checkboxes. Exact figures are presented in Table 10.3. The majority of participants (approximately 55%) indicated that they had seen humiliating pornography at some point. A similar percentage reported having seen violent pornography at some point. A much smaller proportion reported regularly viewing either kind of material (just under 20% for both violent and humiliating pornography).

Table 10.3

*Consumption of Humiliating and Violent Pornography in % (n/cell)*

	Yes	No	Unsure
Have viewed humiliating pornography	58.0 (266)	19.8 (91)	15.5 (71)
Regularly <sup>a</sup> view humiliating pornography	17.9 (82)	67.3 (309)	7.8 (36)
Have viewed violent pornography <sup>b</sup>	55.1 (253)	32.9 (151)	4.6 (21)
Regularly <sup>a</sup> view violent pornography <sup>b</sup>	15.5 (71)	73.0 (335)	3.7 (17)

*Note.* Question limited to those who had viewed pornography in the past six months,  $N = 422$ .

<sup>a</sup>Defined for participants as at least once/month. <sup>b</sup>Defined for participants as “pornography depicting violent acts, e.g., whipping or simulations of forced sex”.

## Consumption Differences by Sexual Orientation

Research outlined in Chapter 2 suggests that gay men may consume more pornography than their heterosexual counterparts. To further probe this possibility, an independent-samples  $t$  test<sup>3</sup> was used to compare self-identified gay and bisexual men ( $n = 70$ ) to self-identified heterosexual men<sup>4</sup> ( $n = 327$ ) in terms of overall level of pornography use (indexed using the composite approach outlined in Chapter 5). This test was statistically significant,  $t(117.43) = 3.42$ ,  $p = .001$ , Cohen's  $d = .39$ , with gay and bisexual men ( $M = .26$ ,  $SD = .71$ ) consuming more pornography than heterosexual men ( $M = -.07$ ,  $SD = .86$ ). The associated Cohen's  $d$  value suggests a small to medium effect.

## Brief Discussion

A novel finding of Survey 1 was the strong positive association between age at the start of regular pornography use and chronological age. This finding supports the frequently-asserted notion (e.g., Dines, 2010), that young men today are regularly using pornography from an earlier age than was the case for previous generations. This is likely the result of greater access to pornography via the Internet. Age at first exposure to pornography was found to weakly positively correlate with chronological age. As age at first exposure to pornography showed low variability, asking participants at what age they first started to *regularly* use pornography (if applicable) may be a more informative index of years of exposure to pornography than asking participants their age at first exposure. As such, future studies into the relationship between age and pornography use may benefit from the inclusion of both types of measures.

One limitation relating to both age measures is that these items relied on the accuracy of participants' memories. Older participants may have been required to cast their minds back

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<sup>3</sup> Welch's  $t$  test was used in place of Student's  $t$  test due to violations of the assumption of homogeneity of variance.

<sup>4</sup> Those who selected *not otherwise specified* as their sexual orientation ( $n = 16$ ) and those who did not respond to the sexual orientation item ( $n = 46$ ) were excluded from this analysis.



several decades to determine when they first started accessing pornography. As such, the figures reported here should be considered general estimates only.

Consistent with the studies outlined in Chapter 2, the Internet was overwhelmingly the most popular method for accessing pornography. Computers were more commonly used to access Internet pornography than smart phones or tablets, but the use of smart phones and tablets was still common. Some sexual media researchers tend to focus on the use of Internet pornography specifically, perhaps because they assume that most pornography is consumed via the Internet. The findings of this study support this assumption. However, it still appears that a sizeable minority of men consume “old-media” pornography (e.g., DVDs/VHS tapes, magazines, erotic literature). As such, it appears that *pornography consumption* and *Internet pornography consumption* are not totally interchangeable terms, and researchers wishing to be more inclusive in their estimates of pornography consumption should employ the former term.

The results relating to the pornographic genres consumed by survey participants is useful in confirming the findings outlined in Chapter 3. Consistent with these findings, the survey indicated that vaginal sex, oral sex performed on a man, external ejaculation, pornography featuring young performers, pornography featuring White performers, amateur pornography, and lesbian pornography are all extremely popular genres (at least among heterosexual men). However, Survey 1 did not assess participants’ use of MILF pornography or step-relative pornography; two types of pornography which have been found to be extremely popular (see Chapter 3). Response rates are perhaps lower than would be expected for some of the categories that were found to be pervasive in the content analyses outlined in Chapter 3 (e.g., oral sex performed on a man). However, it should be noted that this section of the survey was presented to participants in the form of a checklist (i.e., *tick if you have*

*seen, leave blank otherwise*). Thus, it is impossible to distinguish negative responses from missing responses.

It is noteworthy that while a sizeable minority of participants (around 40%) reported having seen either rape simulation or forced sex pornography at some point (the survey did not assess whether participants purposely sought out this content or simply came across it while browsing), far fewer participants (around 5%) reported regularly accessing such content. In a similar pattern, many participants reported having seen violent or humiliating pornography at some point (around 60% in both cases) but fewer reported regularly viewing such content (just under 20% in both cases). These relatively low consumption figures are inconsistent with the idea that violence features prominently in contemporary, mainstream pornography.

As was outlined in Chapter 2, surveys into the prevalence and frequency of pornography consumption among gay men tend to give consumption figures marginally higher than surveys focusing on heterosexual men. This was also found to be the case in the current study. It is not clear as to whether this difference represents a true between-group difference or simply reflects between-group differences in willingness to truthfully report one's pornography use. As was suggested in Chapter 2, gay and bisexual men may simply be more inclined toward truthfully reporting their sexual behaviour. Alternatively, gay and bisexual men may consume more pornography than their heterosexual counterparts because they perceive it to have a greater positive effect on their lives than their heterosexual counterparts do (see below).

### **Self-Perceived Effects among Gay and Bisexual Men**

#### **Introduction and Method**

Participants' self-perceptions of the effects of pornography use was the primary focus of Chapter 7. For reasons outlined in the chapter, this analysis was limited to self-identified

heterosexual men. Below I outline the self-perceived effects of pornography consumption among the subsample of self-identified gay and bisexual men. Once again, the short-form version of the Pornography Consumption Effects Scale (PCES-SF) was utilised for this purpose.

## Results

Gay and bisexual men had a mean short-form, positive effect dimension (PED-SF) score of 3.74 ( $SD = 1.57$ ), indicating a small to moderate self-perceived positive effect, and a mean short-form, negative effect dimension (NED-SF) score of 1.50 ( $SD = 0.81$ ), indicating no self-perceived negative effect to a very-small negative effect. This difference was significant,  $t(65) = 11.19, p < .001$ , Cohen's  $d = 1.79$ , suggesting that gay and bisexual participants self-perceived pornography to have had a significantly greater positive than negative effect on their lives. This difference was somewhat larger than the equivalent finding among heterosexual men:  $t(311) = 14.23, p < .001$ , Cohen's  $d = 0.99$  (see Chapter 7). PCES-SF subscale scores are reported in Table 10.4. Consistent with the findings among heterosexual men, positive effect scores were larger than negative effect scores across all of the subscales. It is notable that compared to the heterosexual subsample, gay and bisexual men reported larger positive effects across all of the positive effect subscales except one: perceptions and attitudes toward the opposite gender. Gay and bisexual men also reported smaller negative effects than their exclusively heterosexual counterparts across all four negative effects subscales.

Table 10. 4

*Mean (SD) Score by PCES-SF Subscale among Self-Identified Gay and Bisexual Men*

Subscale	Positive effect	Negative effect	Paired-samples <i>t</i> test
SL	3.77 (1.80)	1.38 (0.85)	$t(65) = 10.22^{***}$ , $d = 1.70$
LG	3.17 (1.87)	1.59 (1.15)	$t(63) = 6.34^{***}$ , $d = 1.02$
ATS	3.89 (1.91)	1.55 (1.01)	$t(65) = 9.41^{***}$ , $d = 1.53$
PATOG	2.58 (1.78)	1.55 (1.18)	$t(63) = 4.34^{***}$ , $d = 0.68$
SK	4.45 (1.82) <sup>a</sup>		

*Note.* SL = sex life; LG = life in general; ATS = attitudes toward sex; PATOG = perception of and attitudes toward the opposite gender; SK = sexual knowledge.

<sup>a</sup>There is no negative counterpart to the sexual knowledge subscale

\*\*\* $p < .001$

## Brief Discussion

While both the gay and bisexual subsample and the heterosexual subsample reported pornography to have a significantly greater positive than negative effect on their lives, this difference was greater among gay and bisexual men. Furthermore, gay and bisexual men reported more positive effects and fewer negative effects than their heterosexual counterparts in terms of pornography's impact on their sex life, life in general, attitudes toward sex, and sexual knowledge. Gay and bisexual men reported fewer positive effects than heterosexual men in terms of perceptions and attitudes toward the opposite gender. However, it should be acknowledged that scores on this subscale may not be particularly meaningful for populations who primarily watch pornography that does not feature women.

Together, the results suggest that 1) most gay and bisexual men feel that pornography has had a largely positive effect on their lives and 2) gay and bisexual men are somewhat more inclined to feel that pornography has had a positive effect on their lives compared to heterosexual men. In Chapter 7 I outlined survey research into the self-perceived effects of pornography among men who have sex with men (e.g., Hald, Smolenski, & Rosser, 2013; Hald et al., 2015). This literature is consistent with this first finding. The chapter also outlines a qualitative study (McCormack & Wignall, 2017) which suggests that men with non-exclusive sexual orientations may find pornography to be especially important to their

understanding of their own sexuality and sexual preferences. As such, it is probably to be expected that gay and bisexual men would self-perceive pornography to have a greater positive effect on their lives than their heterosexual counterparts. Consistent with McCormack and Wignall (2017), among gay and bisexual men the largest positive and negative subscale differences were found for sex life and attitudes toward sex.

### **Pornography's Effect on Others**

#### **Introduction and Method**

Survey participants were also asked what kind of effect they believe pornography has on others, across a range of domains relevant to this thesis. These included pornography's effect on individuals, society at large, romantic relationships, people's understanding of sex (such as average length of intercourse and average penis size), attitudes toward women, and perceptions of the acceptability of violence against women. Participants were also asked whether they think that violent pornography impacts others' perceptions of violence against women. Responses to all items were on a 7-point scale where 1 = *very negative* or *strongly disagree* and 7 = *very positive* or *strongly agree*. To ease interpretation, 4 was subtracted from these raw scores. As such, in Table 10.5 a value of 0 represents a neutral response, a negative value represents a negative response and a positive value represents a positive response (with a possible range of  $-3$  to  $+3$ ).

Table 10.5

*Perceptions of Pornography's Effect on Others among Sample*

Item	Mean (SD)
Generally speaking, pornography's influence on our society is... <sup>a</sup>	-0.31 (1.40)
Generally speaking, pornography's influence on individuals is... <sup>a</sup>	-0.14 (1.46)
Generally speaking, pornography's influence on romantic relationships is... <sup>a</sup>	-0.16 (1.42)
Pornography distorts peoples' understanding about certain aspects of sex, such as the average length of intercourse and average penis size... <sup>b</sup>	1.56 (1.37)
Pornography in general promotes negative attitudes toward women... <sup>b</sup>	0.19 (1.70)
Pornography distorts peoples' views on whether violence against women is acceptable... <sup>b</sup>	0.10 (1.84)
Watching violent pornography (pornography depicting violent acts such as whipping or simulations of forced sex) distorts peoples' views on whether violence against women is acceptable... <sup>b</sup>	0.42 (1.86)

Note. *N* = 441–448

<sup>a</sup>response anchors were *very negative* (–3) and *very positive* (+3); <sup>b</sup>response anchors were *strongly disagree* (–3) and *strongly agree* (+3)

## Results

As can be seen, participants felt that pornography has a neutral to slight negative effect on others, at both the societal and individual level. Participants felt similarly about the effect of pornography on romantic relationships. In terms of whether participants feel that pornography promotes negative attitudes toward women or distorts views as to the acceptability of violence against women, mean responses were both in the neutral to slightly agree range. The mean score for whether *violent* pornography distorts others' views as to the acceptability of violence against women was slightly higher, but still in the neutral to slightly agree range. The mean for whether pornography may distort others' understanding of aspects of sex such as average length of intercourse and average penis size, was highest, in the slightly agree to moderately agree range.

## Brief Discussion

Results relating to participants' perceptions of pornography's effect on others suggests that the sample believes that pornography has a neutral, to slight negative, effect on others. In contrast, we have seen that, as a whole, the study's sample self-perceived pornography to have had a significantly greater positive than negative effect on their lives. The *third person effect* may shed light on this discrepancy. The third person effect refers to the perception that a media message will have a greater influence on others than on oneself (Perloff, 1999). The third person effect may be especially relevant for negative media effects (e.g., perceptions of whether someone will be negatively influenced by violent video games). Several studies have found evidence for third person effects in relation to pornography (Gunther, 1995; Lee & Tamborini, 2005; Lo & Wei, 2002; Wu & Koo, 2001). In some of these studies the presence of the third person effect was predictive of support for censoring pornography (Gunther, 1995; Lee & Tamborini, 2005). However, in Lo and Wei (2002) and Wu and Koo (2001) the magnitude of the effect was found to be unrelated to desire to restrict pornography. The findings of this study provide further support for the existence of a third person effect in relation to pornography.

## Likelihood of Sexual Force and Rape

### Introduction and Method

Perhaps the most serious accusations levied against pornography is that it promotes rape (e.g., see Chapter 4, Radical Feminist Theories). As such, the Likelihood of Sexual Force Scale and the Likelihood of Rape Scale (Malamuth, 1981, 1989a, 1989b; Briere & Malamuth, 1983) were included in the survey. As part of these measures, participants are typically given a standard prompt—"If you could be assured that no one would know and that you could in no way be punished for engaging in the following acts, how likely, if at all, would you be to commit such acts?"—before being asked to indicate their likelihood of

engaging in the pertinent behaviours: “rape” and “forcing a partner to do something sexually she/he didn't want to do.”<sup>5</sup> Response options are on 5-point scales (where 1 = *very unlikely* and 5 = *very likely*). Likelihood of sexual force and likelihood of rape scores have been shown to correlate with more elaborate measures of propensity for rape, such as rape myth acceptance and physiological arousal to rape (Malamuth, 1981, 1989a, 1989b).

Following Malamuth (1989b), in the current study, the two target acts were dispersed among seven distracter items (e.g., anal sex, group sex, whipping/spanking) so as not to highlight the intent of the scales. To avoid implying that all the acts listed are worthy of punishment, in the current study the scale prompt was altered to “If you could be assured that no one would know (and that in the case of the illegal acts you would not be punished) how likely, if at all, would you be to engage in the following acts?”

Pornography's impact on sexual force and rape likelihood was assessed following the same logic outlined in Chapter 8. Accordingly, three research questions—mirroring those assessed in Chapter 8—were examined:

- RQ1: Is pornography use (in terms of both overall level of use and use of violent and/or humiliating content) predictive of sexual-force and rape likelihood?
- RQ2: Are agreeableness and perceived realism of pornography predictive of sexual-force and rape likelihood?
- RQ3: Do agreeableness and perceived realism moderate the relationships between pornography use and sexual-force and rape likelihood?

These research questions were investigated via general linear modelling. Following Chapter 8, four predictors (overall level of pornography use, regular use of violent and/or humiliating pornography, agreeableness, and perceived realism of pornography), four control

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<sup>5</sup> Readers may argue “forcing a sexual partner to do something he/she does not want to do” does itself constitute rape, and thus feel that the use of two separate scales is unnecessary. However, evidence (e.g., Malamuth, 1989b) suggests that participants are more likely to indicate their willingness to use sexual force than their willingness to rape. Thus, both scales were utilised.



variables (age, religiosity, education, and relationship status) and two product terms (*overall pornography use*  $\times$  *agreeableness* and *overall pornography use*  $\times$  *perceived realism*) were included in these models. As the rape and sexual-force measures are gender neutral, men of all sexual orientations were included in the analysis.

## Results

The models significantly predicted likelihood of sexual force,  $F(13, 384) = 4.91, p < .001, R^2_{\text{adj}} = .11$ , and likelihood of rape,  $F(13, 382) = 2.92, p < .001, R^2_{\text{adj}} = .06$ . Parameter estimates are provided in Table 10.6.<sup>6</sup>

Overall level of pornography use was found to be orthogonal to likelihood of rape, but predictive of likelihood of sexual force. This relationship was in the positive direction. Regular use of violent and/or humiliating pornography was associated with a greater likelihood of sexual force and a greater likelihood of rape. Agreeableness was negatively associated with both outcome measures. Perceived realism of pornography was positively associated with likelihood of sexual force, but not likelihood of rape. Agreeableness and perceived realism were not found to moderate the association between level of pornography use and either of the likelihood measures.

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<sup>6</sup> The two-tailed, zero-order correlation between pornography use and likelihood of sexual force was positive and significant,  $r(430) = .17, p < .001$ . The two-tailed, zero-order correlation between pornography use and likelihood of rape was non-significant,  $r(428) = .09, p = .058$ .

Table 10. 6

*Analysis Assessing the Effects of Study Variables on Likelihood of Sexual Force and Likelihood of Rape*

	<i>B</i>	<i>SE</i>	<i>p</i>	$\eta_p^2$
Likelihood of Sexual Force				
Level of pornography use	.13	.06	.031	.01
Use of violent/humil pornography				
No use of violent/humil pornography <sup>a</sup>				
Use violent/humil porn pornography	.43	.13	.001	.03
Perceived realism	.03	.01	.030	.01
Agreeableness	-.02	.01	.001	.03
Pornography use $\times$ perceived realism	.08	.05	.127	.01
Pornography use $\times$ agreeableness	-.05	.05	.311	> .01
Age	.01	.01	.040	.01
Religiosity	.06	.02	.005	.02
Education				
No university study <sup>a</sup>				
Some undergraduate study	-.05	.15	.760	> .01
Undergraduate degree	-.13	.16	.423	> .01
Some postgraduate study/degree	-.08	.17	.648	> .01
Relationship Status				
Not in relationship <sup>a</sup>				
In relationship, cohabiting	-.17	.14	.238	> .01
In relationship, not cohabiting	-.13	.15	.373	> .01
Likelihood of Rape				
Level of pornography use	.05	.05	.372	> .01
Use of violent/humil pornography				
No use of violent/humil pornography <sup>a</sup>				
Use violent/humil porn	.29	.11	.008	.02
Perceived realism	.02	.01	.115	.01
Agreeableness	-.02	> .01	.001	.03
Pornography use $\times$ perceived realism	.01	.05	.764	> .01
Pornography use $\times$ agreeableness	-.05	.04	.251	> .01
Age	.01	.01	.082	> .01
Religiosity	.02	.02	.224	> .01
Education				
No university study <sup>a</sup>				
Some undergraduate study	-.16	.13	.219	.04
Undergraduate degree	-.05	.14	.724	> .01
Some postgraduate study/degree	-.22	.15	.127	> .01
Relationship Status				
Not in relationship <sup>a</sup>				
In relationship, cohabiting	-.23	.12	.063	> .01
In relationship, not cohabiting	-.12	.12	.322	> .01

<sup>a</sup>Reference category

## Brief Discussion

As was mentioned in Chapter 8, Wright, Tokunaga, and Kraus's (2016b) meta-analysis of 22 studies into pornography's impact on acts of sexual aggression (both verbal and physical) found pornography to be associated with sexually aggressive behaviour. The association was stronger for verbal aggression as compared to physical aggression and use of violent pornography as compared to general pornography (although this difference was only marginally significant). Another meta-analysis (Hald, Malamuth, & Yuen, 2010) has found a positive association between pornography use and attitudes supporting violence against women—for example, rape myth acceptance—in non-experimental studies; again, with a larger effect for violent pornography. However, an older meta-analysis (Allen, Emmers, Gebhart, & Giery, 1995) detected no association between pornography use and rape myth acceptance for non-experimental studies, and only a small positive effect for experimental studies. A fourth meta-analysis of experimental studies (Allen, D'Alessio, & Brezgel, 1995) found pornography use to increase acts of non-sexual aggression against experimental confederates. Issues with the experimental studies assessed as part of this meta-analysis are further discussed in Chapter 11 (see also Chapter 4, Excitation Transfer Theory). Nonetheless, the weight of evidence would seem to suggest that pornography use may increase attitudes supportive of sexual aggression and actual instances of sexual aggression, and that this effect is more pronounced for violent pornography.

In the current study, pornography's impact on participants' stated likelihood of using sexual force or committing rape was assessed. Level of pornography use was predictive of likelihood of using sexual force but not likelihood of rape. However, the effect for likelihood of sexual force was very small. Regular use of violent and/or humiliating pornography was associated with a higher reported likelihood of using sexual force and likelihood of rape. Once again, these effects were small (although larger than the effect for pornography use

more generally). The findings in relation to the use of violent and/or humiliating pornography are consistent with the aforementioned meta-analyses. The findings in relation to general pornography use are mixed and thus somewhat at odds with existing literature. Given the small effect sizes observed, it may just be that the sample was too small to find an effect for likelihood of rape.

The fact that general pornography use was predictive of likelihood of sexual force, but not likelihood of rape suggests that employing these measures in tandem is important. It may be the case that the inclusion of the rape measure “gave permission” to participants to report their true inclination toward the use of sexual force—“I certainly wouldn’t rape, but I might do this thing that I perceive as *less bad*.” Why an association was found for sexual force likelihood, but not rape likelihood, and how these findings fit with the other thesis findings, are discussed at length below (see Chapter 12, To What Effect?).

There are several issues with concluding that the data presented here are strong evidence for pornography promoting acts of sexual violence. First, there is the inevitable correlation-vs.-causation problem that stems from the use of cross-sectional data. This being said, Wright, Tokunaga, and Kraus’s (2016b) meta-analysis did find pornography use to be associated with acts of sexual aggression in both cross-sectional and longitudinal study designs. Second, it may be the case that the observed relationships are the result of the variables having a shared association with some unmeasured third variable. For example, as suggested by Baer, Kohut, and Fisher (2015), sex drive could impact both consumption of pornography and sexual violence. Third, the scales used are attitudinal measures, and attitudes do not perfectly predict behaviours. In many cases an individual may have a positive attitude toward a behaviour but not actually engage in that behaviour. As such, the positive associations detected may not translate into actual acts of sexual aggression. This criticism is especially relevant given the prompt specifying that participants would not face legal

repercussions for any criminal acts. Obviously, in real life this would not be the case. Conversely, it could be argued that because of strong social prohibitions against rape, participants may have under reported their true inclinations. It is hoped that the survey's focus on anonymity (see Chapter 5), and the tandem inclusion of the rape likelihood and sexual-force likelihood measures, would have minimised this issue.

As in Chapter 8, no evidence was found for the moderating effect of agreeableness or perceived realism. Results around agreeableness's lack of a moderating effect may be interpreted as evidence against the hierarchal confluence model. However, as I stated in Chapter 8 (see also Chapter 12), agreeableness may simply be too broad a measure to effectively index risk for sexual offending.

## **Chapter 11: An Experimental Investigation into Pornography's Effect on Men's Perceptions of the Likelihood of Women Engaging in Porn-Like Sex**

### Author Note

This chapter is a manuscript version (post-peer-review) of the following publication:  
Miller, D. J., McBain, K. A., & Raggatt, P. T. F. (2018). An experimental investigation into pornography's effect on men's perceptions of the likelihood of women engaging in porn-like sex. *Psychology of Popular Media Culture*. Advance online publication.

<http://dx.doi.org/10.1037/ppm0000202><sup>1</sup>

See Appendices F and G for supplementary information regarding this study.

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<http://dx.doi.org/10.1037/ppm0000202>

### Abstract

This experimental study investigates whether exposure to pornography affects men's perceptions of the likelihood of women engaging in, and enjoying, "porn-like" sex. Participants ( $N = 418$ ) were either exposed to non-pornographic control videos or pornographic videos in which a male taxi driver has sex with a female passenger. Participants' perceptions of the likelihood of women engaging in various sexual practices commonly depicted in pornography (e.g., unprotected sex with a stranger, rough sex) were then assessed across two vignettes. In the first vignette, a male taxi driver propositions a female passenger. In the second, a male boss propositions a female employee. The study was administered online to maximize ecological validity. No effect was found for experimental exposure. However, an effect was detected for past exposure. Men who had viewed taxi-themed pornography in the previous six months rated the female taxi vignette character as being more likely to engage in porn-like sex with a male taxi driver. Similarly, those who had viewed workplace-themed pornography in the previous six months judged the female workplace vignette character as being more likely to engage in porn-like sex with a male boss. The implications of these findings for theoretical models of sexual media socialization are discussed.

*Keywords:* pornography; sexually explicit media; men; media effects

### Public Policy Relevance Statement

There is much public interest in the effects of pornography use on consumers' perceptions of women, yet relatively few experimental studies have investigated this issue. In the current study, experimental exposure to pornography was not found to influence men's perceptions of the likelihood of women engaging in the kinds of sexual practices commonly depicted in pornography. However, the study did find that past use of certain kinds of pornography is associated with judging women to be more likely to engage in porn-like sex in some situations, indicating the potential socializing effect of pornography in regard to men's perceptions of what is sexually normative. It is possible that such changes to perceptions of sexual norms may negatively impact the lives of both men and women.



## Introduction

Due to the proliferation of the Internet, pornography is now more easily accessible than ever before. Given this accessibility, it is perhaps not surprising that survey research consistently finds pornography consumption to be commonplace, especially among young men. An analysis of four large-scale, nationally representative surveys estimates that 46% of US men and 16% of US women aged between 18 and 39 are weekly pornography viewers (Regnerus, Gordon, & Price, 2015), although several smaller surveys have reported higher weekly viewing figures, especially among men (Kvalem, Træen, Lewin, & Štulhofer 2014; Nelson et al., 2014; Miller, Hald, & Kidd, 2018; E. M. Morgan, 2011; Rosser et al., 2013; Sun, Miezan, Lee, & Shim, 2015; Træen & Daneback, 2013). Additionally, multiple studies report that more than 90% of men have viewed pornography at some point (Kvalem et al., 2014; Nelson et al., 2014; Miller, Hald, & Kidd, 2018; E. M. Morgan, 2011; Mulya & Hald, 2014; Rosser et al., 2013; Sun, Miezan, Lee, & Shim, 2015; Træen & Daneback, 2013).

The high prevalence of pornography consumption raises questions about the potential socializing effects of pornography use. A great deal of research has been generated in response to this. One particularly fruitful theory to be applied to the area of sexual media socialization is sexual script theory (Gagnon & Simon, 2005, see also Weideman, 2015). Simply put, sexual script theory posits that human sexual behaviour is guided by *scripts*: “the mental representations individuals construct and then use to make sense of their experience, including their own and others’ behavior” (Weideman, 2015, p. 7). Wright (2011) builds on sexual script theory with his acquisition, activation, and application model of media sexual socialization (<sub>3</sub>AM; see also Wright & Bae, 2016; Wright & Tokunaga, 2015). The <sub>3</sub>AM argues that pornography plays an important role in creating new scripts (acquisition), priming existing scripts (activation), and encouraging the utilization of scripts to inform attitudes and behaviors (application). Accordingly, pornography may influence what is thought of as

normative, impacting perceptions of sexuality, sexual situations, sexual behaviours, and evaluations of sexual relations (Hald, Seaman, & Linz, 2014).

There is research indicating that pornography use affects consumers' attitudes and behaviors in ways that are consistent with sexual script theory. For example, content-analytic studies suggest that mainstream pornography rarely depicts condom use (Gorman, Monk-Turner, & Fish, 2010; Vannier, Currie, & O'Sullivan, 2014). To put this in the language of sexual script theory, much pornography contains scripts presenting condomless sex as normative. Wright, Tokunaga, and Kraus (2016a) found that university students who frequently consumed pornography judged their peers to be less likely to use condoms (script acquisition and activation) and were themselves more likely to engage in condomless sex (script application). Similarly, pornography use has been found to be associated with a desire to engage in the kinds of sexual practices depicted in pornography (E. M. Morgan, 2011), permissiveness towards casual sex (Brown & L'Engle, 2009; Peter & Valkenburg, 2010), and more positive attitudes toward extramarital sex (Wright, Tokunaga, & Bae, 2014). One meta-analysis of correlation studies found that pornography use is associated with attitudes supporting violence against women, with a stronger effect for violent pornography (which presumably would be more likely to contain scripts suggesting that violence against women is normative), compared to non-violent pornography (Hald, Malamuth, & Yuen, 2010).

Although these results are consistent with sexual script theory, alternative explanations cannot be ruled out due to the cross-sectional nature of many of these studies. For example, the selective exposure hypothesis (see Wright et al., 2016a; Wright & Bae, 2016) would suggest that consumers seek out pornography which reflects their existing attitudes and behavioral tendencies, rather than pornographic scripts shaping these attitudes and behaviors (e.g., those who hold attitudes supporting violence against women may be more likely to seek out violent pornography). It is due to this problem of determining

direction of causation that multiple authors (Hald, Seaman, & Linz, 2014; Wright & Bae, 2016) have called for more longitudinal and experimental studies into the effects of pornography.

While it is true that the pornography research literature relies heavily on cross-sectional evidence, some experimental studies are available to draw on. Allen, D'Alessio, and Brezgel (1995) meta-analyzed 33 experiments into the effect of pornography on aggression published between 1971 and 1984. Their analysis found experimental exposure to pornography to increase aggressive behavior. This effect was larger for violent pornography. However, the authors also found that this effect was moderated by experimental manipulation of anger. In the meta-analysis, experimental exposure to pornography increased aggressive behaviour, but only among participants who were also provoked by a confederate. More recently, Wright and Tokunaga (2015) exposed male university students to explicit centerfolds. They found that the experimental exposure strengthened the sexual reductionism, masculinity validation, and nonrelational sexual beliefs of participants who did not regularly view such material. The centerfolds had no effect on the attitudes of participants who did regularly view such material (although the sexual reductionism, masculinity validation, and nonrelational sexual beliefs of this group were already high). Similarly, Hald and colleagues exposed male and female participants to 25 min of non-violent pornographic videos (Hald & Malamuth, 2015; Hald, Malamuth, & Lange, 2013). They found experimental exposure to pornography increased attitudes supporting violence against women and hostile sexism among participants low in agreeableness (but not among those high in agreeableness). They also found experimental exposure to pornography to increase hostile sexism among female participants.

The early experiments meta-analyzed by Allen, D'Alessio, and Brezgel (1995) have been criticized for lacking ecological validity (Fisher & Barack, 1991; Fisher & Grenier,

1994)—both in terms of the laboratory setting in which the studies were carried out and the frequent use of experimental procedures that provided participants no option but to aggress (e.g., having participants choose the strength of an electric shock to be delivered to a female confederate, without giving participants the option of not shocking the confederate). While the more recently conducted experiments described above (Hald & Malamuth, 2015; Hald, Malamuth, & Lange, 2013; Wright & Tokunaga, 2015) differ from these early experiments in terms of the outcome variables assessed, there are still issues surrounding their ecological validity. It has to be acknowledged that viewing pornography in a laboratory setting is unusual and potentially embarrassing for participants, and may affect the way participants respond on outcome measures. Another issue that needs to be considered in regard to experimental investigations into the effects of pornography is past exposure. As has been outlined above, the prevalence of pornography consumption in the population is high (especially among men). As such, it is questionable as to whether experimental exposure to 15–30 min of pornographic content (the typical level of experimental exposure) would be enough to create a meaningful difference between the control and exposure groups in terms of the treatment (although it may be enough to prime an existing script). We will refer to this as the *past exposure problem*.<sup>2</sup>

### Current Study

The current study employed a randomized experimental design in order to investigate whether exposure to pornography (both experimental and pre-experimental) affects men's judgements of women's willingness to engage in, and women's enjoyment of, "porn-like" sex (the kinds of sexual practices and situations commonly depicted in pornography, e.g., unprotected sex with a stranger, rough sex, ejaculation onto the partner). To the authors' best knowledge, there have been no experimental studies assessing whether pornography affects

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<sup>2</sup> One of the studies analyzed in Allen et al. (1995), Zillman and Bryant (1988), avoided the past exposure problem by experimentally exposing participants to pornography repeatedly over an extended period of time.

men's judgements of how likely women are to engage in, and enjoy, porn-like sex. The study focuses on men because 1) concern over the negative societal effects of pornography often focus on men's use of pornography, and 2) research indicates that men consume more pornography than women (Böhm, Franz, Dekker, & Matthiesen, 2014; Hald, 2006; Hald & Malamuth, 2008; Mulya & Hald, 2014; Paul & Shim, 2008; Regnerus et al., 2015).

This study seeks to remedy the major limitations of previous experimental studies into the effects of pornography, namely, lack of ecological validity and the past exposure problem. In order to replicate the environment in which most pornography is consumed (at home, in private), and thereby maximize ecological validity, the study was administered entirely online. In order to avoid the past exposure problem, experimental stimulus material was chosen from a very specific pornographic genre: pornography in which a male taxi driver has sex with a female passenger. It was reasoned that it would be less likely that participants would have been exposed to a great deal of such a specific genre of pornography in the recent past, thus the experimental exposure would be enough to create a meaningful treatment difference between the control and experimental exposure groups.

Participants' judgements were assessed across two written scenarios: one in which a male taxi driver propositions a female passenger, and one in which a male boss propositions a female employee. Based on sexual script theory we expected that those in the experimental stimulus condition, or those who had previously been exposed to similar material, would make judgements about the female character in the taxi scenario which more closely align with the world depicted in (taxi-themed) pornography. It was also believed that the effect of experimental exposure on social judgments would generalize across situations to the workplace scenario. Accordingly, the following hypotheses were tested as part of the current study:

- H1: The experimental exposure group will judge women to be more likely to engage in, and enjoy, porn-like sex with a taxi driver compared to the control group.
- H2: The experimental exposure group will judge women to be more likely to engage in, and enjoy, porn-like sex with their boss compared to the control group.
- H3: Those who had been exposed to taxi-themed pornography prior to the experiment will judge women to be more likely to engage in, and enjoy, porn-like sex with a taxi driver compared to those who had not viewed such material.
- H4: Those who had been exposed to workplace-themed pornography prior to the experiment will judge women to be more likely to engage in, and enjoy, porn-like sex with their boss compared to those who had not viewed such material.

## **Method**

### **Participants**

The final sample consisted of 418 men. The age of participants ranged from 18 to 72 years ( $M = 30.14$ ,  $SD = 13.61$ ). Students participating for course credit made up 46.9% of the sample with the remaining 53.1% being community members. Other demographic characteristics of the sample are reported in Table 11.1.

Table 11.1

*Demographic Characteristics of Final Sample (N = 418)*

Variable	<i>n (%)</i>
Sexual orientation	
Heterosexual	315 (75.4)
Gay	15 (3.6)
Bisexual	49 (11.7)
Other	16 (3.8)
Missing	23 (5.5)
Highest level of formal education	
No university study	106 (25.4)
Some undergraduate study	130 (31.0)
Undergraduate degree	83 (19.9)
Some postgraduate study/degree	78 (18.6)
Missing	21 (5.0)
Country	
Australia/New Zealand	167 (40.0)
Asia	44 (10.5)
Europe	34 (8.1)
USA	129 (30.9)
North America, other	12 (2.9)
Other	8 (1.9)
Missing	24 (5.7)
Relationship status	
In relationship, cohabiting	143 (34.2)
In relationship, not cohabiting	89 (21.3)
Not in relationship	181 (43.3)
Missing	5 (1.2)

**Procedure**

The study was administered entirely online. On the first page of the study it was made clear to participants that the study may involve viewing pornographic video content. It was recommended that participants complete the study in a private place. Participant anonymity was highlighted.

Participants were randomly assigned to either the experimental or control condition, and then exposed to either 22 min of taxi-themed pornographic video content (experimental condition) or 22 min of non-pornographic video content (control condition). Participants in

both conditions were instructed to watch the video content in its entirety. Following this, participants were presented with the two written vignettes: one in which a male taxi driver propositions a female passenger (taxi vignette) and one in which a male boss propositions a female employee (workplace vignette). The outcome measures were interspersed throughout the vignettes. To control for order effects, the order in which the two vignettes were presented to participants was randomized. Participants were then presented with a brief questionnaire. The questionnaire assessed past pornography use and various background and demographic factors. The study took approximately 40 min to complete.

Participants were recruited via websites dedicated to hosting academic studies (Call for Participants, Social Psychology Network, and the Facebook page of Psychology Participants and Researchers), the blog Sex and Psychology, as well the student participant pool at the authors' host institution. Non-student participants were offered the chance to go into a prize draw (for a \$50 gift voucher). Ethical approval to conduct the study was obtained from the host institution.

A total of 457 participants completed the study. Duplicate cases ( $n = 21$ ), cases with excessive missing data on the outcome variables ( $n = 7$ ) and multivariate outliers ( $n = 11$ ) were then deleted, leaving a final  $N$  of 418. Mahalanobis distances were used to identify multivariate outliers (using an  $\alpha$  of .001; Tabachnick & Fidell, 2013).

## Measures and Materials

**Pornography use.** Pornography use 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 contains: 1) explicit depictions of genitals, and/or 2) clear and explicit depictions of sexual acts such as vaginal intercourse, anal intercourse, oral sex, masturbation etc.”

Participants were asked whether they had viewed pornography ever and in the last six months. Frequency of pornography use over the last six months was then assessed via an 8-



point scale (where 1 = *less than monthly* and 8 = *more than once a day*). Average viewing session length over the last six months was assessed using a 6-point scale (where 1 = *less than 5 min* and 6 = *greater than 60 min*). These two items were z-standardized and averaged to create an index of level of pornography use. Whether participants had viewed pornography depicting “taxi drivers having sex with their passengers” or “bosses having sex with their employees” at any point, and in the last six months (outside of the experiment), was also assessed.

**Agreeableness.** As mentioned above, agreeableness has been found to moderate the effect of experimental exposure to pornography (Hald & Malamuth, 2015; Hald, Malamuth, & Lange, 2013). Accordingly, a measure of agreeableness was included in the study so that its potential moderating effect could be assessed.

Agreeableness was assessed using the agreeableness subscale of Sucier’s (1994) short-form version of the Big-Five Marker Scale (Goldberg, 1992). The subscale consists of eight Likert-type items (ranging from 1 = *extremely inaccurate* to 9 = *extremely accurate*). In the present study, scale scores had a Cronbach’s alpha of .86.

**Socially desirable responding.** Socially desirable responding refers to the tendency of research participants to “tailor responses for the purpose of looking good” (Meston, Heiman, Trapnell, & Paulhus, 1998, p. 148), by giving responses which conform to social norms. Socially desirable responding is especially likely on self-report measures relating to sensitive topics, such as sexual behavior (Krumpal, 2013; Meston et al., 1998). It was thought that socially desirable responding might impact participants’ responses on the outcome measures, their willingness to report their past use of pornography, and the likelihood that they would skip past the stimulus videos. Accordingly, a measure of social desirability—the 16-item version of the Balanced Inventory of Desirable Responding (Hart, Ritchie, Hepper, & Gebauer, 2015)—was included in the current study so that group differences in social

desirability could be examined and controlled for if necessary. The scale breaks into two subscales: self-deceptive enhancement and impression management. In the current study, scale scores had alphas of .71 and .72 respectively.

**Demographics.** A number of demographic variables were also assessed including age (in years), country, sexual orientation (heterosexual; gay; bisexual; other), highest level of formal education (no university study; some undergraduate study; undergraduate degree; some postgraduate study/degree), and relationship status (in a relationship, cohabiting; in a relationship, not cohabiting; not in a relationship).

**Experimental condition video content.** Two pornographic experimental stimulus videos were used. The videos were taken from the website Youporn, one of the Internet's most visited adult websites (Alexa, 2017c). Both scenes are roughly 11 min long and depict a male taxi driver having sex with a female passenger.

In the first video, *Fake Taxi, Stranded French Tourist Earns Extra Cash*, a taxi driver parks in front of a woman in her early 20s standing by the side of the road. She explains that she is a tourist and that she wants to go to her hotel but has lost her credit card. The driver intimates that he can give the tourist money in exchange for sex. The tourist is reluctant initially, but then agrees. The scene cuts to a deserted overpass. The pair is standing by the taxi. The tourist performs oral sex on the driver. They then engage in vaginal sex. The tourist is depicted as enjoying this. The tourist again performs oral sex on the driver. The scene cuts to the pair again engaging in vaginal sex. The driver ejaculates onto the tourist's buttocks and thighs.

In the second video, *Fake Taxi, Heavy Metal Grupie [sic] Likes it Hard and Rough*, a taxi driver picks up a woman in her early 20s. She tells the driver that she wants to go to a hotel. The passenger explains that she was at a concert, she met the band, and that they had invited her to their hotel. It is implied that she is a groupie. The passenger then receives a text

stating that the band is no longer staying at the hotel. The passenger is disappointed, and the passenger and driver agree to have sex. The scene cuts to the taxi parking on a side-street. The passenger performs oral sex on the driver. The driver rips the passenger's stockings. They engage in vaginal sex. The passenger is depicted as enjoying this. The driver spansks the passenger and grabs her ponytail. She is depicted as enjoying this also. The scene cuts to the driver ejaculating onto the face of the passenger. Both of the experimental stimulus clips are presented as real interactions (e.g., the footage is presented as if it is taxi security camera footage). In neither of the clips is a condom used at any point.

**Control condition video content.** Two non-pornographic control stimulus videos were used. Both were sourced from popular educational Youtube channels. The first video, *The Vikings! Crash Course World History 224*, outlines the history of the Vikings, with a focus on Viking trade and religion. The second video, *Healthcare Triage Answers Your Questions, Part 2*, features a physician answering healthcare related questions submitted by viewers (e.g., one question asked about the cause of hiccups and another asked about the benefits of eating less red meat). These videos were selected from the aforementioned channels because they were similar in length to the experimental stimulus videos, and because it was thought that they would not elicit a strong-emotional response in the viewer, but at the same time were not so dull as to bore the viewer and cause them to leave the study. Neither video depicted sexual behaviour or featured sexual content (although the second video does briefly mention medical research around the efficacy of abstinence only sex-education).

**Time spent on video content.** As the study was administered online it was not possible to directly observe whether participants complied with the instructions to watch the stimulus videos in their entirety. However, the time participants spent on the stimulus video section of the study was recorded as a validity measure (this was not made known to

participants). Participants who spent too little or too much time on this section of the study were excluded from the analysis of the effect of the experimental exposure (see Validity and Manipulation Check below).

### **Vignettes and outcome measures.**

***Taxi vignette.*** The taxi vignette was designed to mirror the scenarios depicted in the experimental stimulus videos. The vignette involves a taxi driver (Bill) propositioning a young female passenger (Christy). The scenario was presented in blocks and after each block participants were asked to rate how likely it is that Christy would engage in a particular sexual act, or how enjoyable or arousing she would find this act. Each block was presented on a new page of the study. Participants were also asked the same questions in regard to the “average, single girl around Christy’s age.” The first two blocks were as follows (the full vignettes are available from the first author):

Block One: Christy is young, attractive and single. She is leaving a nightclub after a night out dancing with her friends. She has had a few drinks—she is tipsy but not drunk. Outside the club she hails a taxi. The taxi driver, Bill, is a little older than Christy. He has a medium build and is quite handsome. Christy asks how much it will cost to get home. Bill tells her. She says she can’t afford to go the whole way but asks if Bill can take her as far as he can for \$40. Bill agrees.

On the drive Christy and Bill are talking and flirting a little. Bill says that he picked up a group of girls at the same club earlier in the week and that they flashed their breasts to get a discount on the ride. Christy laughs. Bill tells Christy that if she flashes him he will drive her all the way home for the \$40.

- Do you think Christy would agree to flash Bill? Indicate the likelihood of Christy agreeing to this using the slider.

- Do you think that the average, single girl around Christy's age would agree?

Indicate the likelihood of an average, single girl agreeing to this using the slider.

Block Two: Christy agrees. She flashes Bill while they are stopped at a red light. Bill tells Christy that she is hot. Christy seems flattered by this. He then tells her that he knows a quiet park on the way where they can stop to make out if she wants.

- Do you think Christy would agree to make out? Indicate the likelihood of Christy agreeing to this using the slider.
- Do you think that the average, single girl around Christy's age would agree? Indicate the likelihood of an average, single girl agreeing to this using the slider.

Responses were recorded using unnumbered graphic rating scales (also called *slider scales*). Following Roster, Lucianetti, and Albaum's (2015) suggestion, participants were instructed that they need to move the slider in order for it to record a response. All responses had a possible range of 1 to 100, where 1 represents the left-most position on the slider (*not at all likely; not at all arousing/enjoyable; or very unrealistic*) and 100 represent the right-most position (*very likely; very arousing/enjoyable; or very realistic*).

**Workplace vignette.** The second vignette describes a lawyer (Steve) propositioning a younger employee (Tasha). The scenario discussed differs from what is depicted in the experimental stimulus videos, but features similar themes and power dynamics (i.e., a man in a position of relative power propositioning a young woman). In both vignettes it was specified that a condom was not used during the sexual encounter.

**Outcome measure scoring.** Table 11.2 outlines all the sex acts that participants were asked to respond to in the vignettes. Means and standard deviations for each item are also reported in Table 11.2. Aside from kissing, all of the acts mentioned in the vignettes were

featured directly in the experimental stimulus videos. Participants were also asked to rate how realistic they found the vignettes to be.

Table 11.2

*Overall Sample's Mean Responses to Each of the Vignette Items*

Sex Acts	<i>M (SD)</i>		
	Named Character	Avg Girl	Realism
Taxi Vignette			
1. Flashing breasts <sup>a</sup>	54.71 (26.18)	41.35 (25.41)	-
2. Kiss <sup>a</sup>	41.27 (24.83)	27.11 (21.75)	-
3. Oral sex, performed on male <sup>a</sup>	54.54 (27.03)	35.31 (26.58)	-
4. Vaginal sex <sup>a</sup>	50.31 (28.93)	29.47 (26.56)	-
5. Spanking, of female <sup>b</sup>	61.67 (25.48)	49.38 (27.98)	-
6. Dirty talk ("dirty girl" and "slut") <sup>b</sup>	49.41 (26.02)	35.89 (25.13)	-
7. Ejaculation onto partner's torso/breasts <sup>b</sup>	52.13 (26.04)	41.01 (26.65)	-
8. Scenario realism <sup>c</sup>	-	-	22.38 (22.26)
Workplace Vignette			
1. Kiss <sup>a</sup>	60.27 (24.49)	41.66 (24.94)	-
2. Manual stimulation, performed on male <sup>a</sup>	47.36 (27.31)	30.90 (24.82)	-
3. Oral sex, performed on male <sup>a</sup>	63.42 (26.17)	38.06 (28.31)	-
4. Hair pulling during oral sex <sup>b</sup>	57.25 (25.26)	44.98 (27.16)	-
5. Vaginal sex <sup>a</sup>	54.71 (27.58)	33.30 (27.11)	-
6. Rough sex <sup>b</sup>	51.48 (26.70)	36.59 (27.46)	-
7. Ejaculation onto partner's face <sup>b</sup>	43.48 (28.36)	28.32 (25.53)	-
8. Scenario realism <sup>c</sup>	-	-	27.66 (24.16)

*Note.* All items had a potential range of 1–100.

<sup>a</sup>Slider anchored by *not at all likely* and *very likely*. <sup>b</sup>Slider anchored by *not at all arousing/enjoyable* and *very arousing/enjoyable*. <sup>c</sup>Slider anchored by *very unrealistic* and *very realistic*.

For each vignette, responses were averaged across the seven sex acts to produce two overall scores (one for Christy or Tasha and one representing the average girl) where higher scores represent greater perceived likelihood of Christy, Tasha, or the average girl engaging in, and enjoying, porn-like sex.<sup>3</sup> This resulted in six outcome measures (three per vignette):

<sup>3</sup> Some items ask about the likelihood of Christy, Tasha, or the average girl "engaging" in particular sexual acts (e.g., oral sex), while others ask about the likelihood of Christy, Tasha, or the average girl "enjoying" various sexual behaviors (e.g., rough sex). We felt this approach better reflected the progression of the behaviors depicted in the experimental stimulus videos. Both videos start with male characters asking female

1) taxi vignette named character (Christy) likelihood rating; 2) taxi vignette average girl likelihood rating; 3) taxi vignette realism rating; 4) workplace vignette named character (Tasha) likelihood rating; 5) workplace vignette average girl likelihood rating; and 6) workplace vignette realism rating. The patterns of correlations between items on the four multi-item measures (outcome measures 1, 2, 4, and 5) were all similar, with inter-item correlations all being positive and significant. Inter-item correlations ranged from .36 to .70 for outcome measure 1, .39 to .77 for outcome measure 2, .22 to .67 for outcome measure 4, and .36 to .72 for outcome measure 5. The mean inter-item correlations for these scales were .51, .53, .45, and .56 respectively. Cronbach's alphas for the multi-item measure scores ranged from .85 to .90, suggesting good internal reliability.

## Results

### Validity and Manipulation Check

As was outlined above, in order to assess compliance with the study, the amount of time participants spent on the stimulus videos section of the study was recorded. Many participants did not comply with the instruction to watch both stimulus videos in their entirety. The analysis assessing the experimental effect was limited to those who viewed approximately three-quarters (> 900 seconds) of the stimulus material. The value of 900 seconds was chosen to ensure adequate exposure to the stimulus material, but also a reasonable number of participants for the analysis. Those who spent an excessive amount of time (> 3000 seconds) in the stimulus videos section of the study were also excluded. This screening process left 200 participants ( $n_{\text{con}} = 95$ ,  $n_{\text{exp}} = 105$ ). A 2x2 chi-square test for independence indicated that study exclusion (participant excluded or included in analysis)

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characters if they are willing to engage in a particular sexual act (e.g., oral sex), while later sexual behaviors (e.g., rough sex) are performed without first asking permission. We believe this approach not only reflects the stimulus videos used as part of the current study, but also mainstream pornography more generally, as content analyses (Bridges, Wosnitzer, Scharrer, Sun, & Liberman, 2010; Sun, Bridges, Wosnitzer, Scharrer, & Liberman, 2008) indicate that in mainstream pornography female characters typically respond to all sexual behaviors, even violent behaviors, with enthusiasm and pleasure.

was independent of condition assignment (control or experimental condition),  $\chi^2(1, 1) = 0.02$ ,  $p = .892$ .

To confirm that the randomization process was successful, the control and experimental exposure groups were compared on age, overall level of pornography use, agreeableness, self-deceptive enhancement, and impression management using independent samples  $t$  tests. The control and experimental exposure groups were also compared on use of taxi-themed pornography in the last six months and use of workplace-themed pornography in the last six months using chi-square tests for independence. The groups did not significantly differ on any of the variables assessed.

The analysis assessing the effect of pre-experimental use of pornography on the outcome measures was performed on the entirety of the sample. This was done to maximize power and minimize sampling bias (as the compliant and non-compliant subsamples may differ on potential confounding variables).

### **Pornography Use among Sample**

The vast majority of the overall sample reported having seen pornography at some point (96.7%) and in the last six months (91.4%). Median frequency of viewing pornography over the last six months was 1–2 times per week. Median viewing session length was 15–30 min. About half of the sample (49.2%) reported having viewed taxi-themed at some point, and 29.1% reported having viewed such material in the last six months. In terms of workplace-themed pornography, 73.7% of the sample reported viewing such material at some point, and 40.6% had viewed workplace-themed pornography in the last six months.

### **Effect of Experimental Exposure**

Experimental exposure group means and their 95% confidence intervals are presented in Figure 11.1. Independent samples  $t$  tests were used to compare the control and experimental exposure groups. These tests are outlined in Table 11.3. As can be seen, the



groups differed on taxi scenario realism only. Participants in the experimental exposure group rated the taxi scenario as *less* realistic than those in the control group.

As outlined above, past research has found experimental exposure to pornography to impact the attitudes of participants low in agreeableness only (Hald & Malamuth, 2015; Hald Malamuth, & Lange, 2013). Additionally, Wright and Tokunaga (2015) found experimental exposure to centerfolds to influence attitudes among those who had not previously been exposed to centerfolds only. Given that an experimental effect was not observed in the above analysis, further analysis was conducted to determine if agreeableness or past exposure to taxi-themed pornography were moderating the experimental effect (such that an experimental effect would be present among those low in agreeableness, or those who had never viewed taxi-themed pornography). This was done using model 2 of Hayes's (2018) PROCESS macro (version 3) for SPSS. Model 2 was selected so that the moderating effect of agreeableness (entered as a continuous variable) and past use of taxi-themed pornography (entered as a dichotomous variable: have viewed; have never viewed) could be tested simultaneously. Neither variable was found to moderate the experimental effect for any of the six outcome measures.

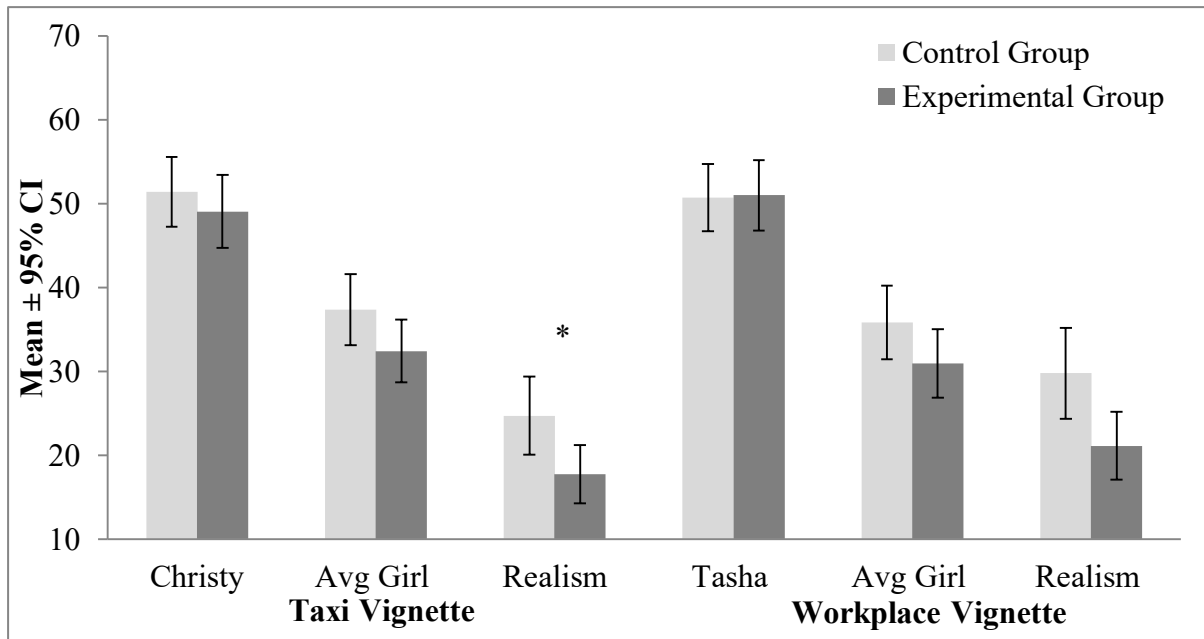


Figure 11.1. Mean scores and 95% CIs for study outcome measures (named character, porn-like sex likelihood; average girl, porn-like sex likelihood; scenario realism) by experimental exposure group (control group and experimental group). \*  $p < .05$ .

Table 11.3

*Comparison of Experimental Exposure Groups (Control Group and Experimental Group) on Outcome Measures (Named Character, Porn-Like Sex Likelihood; Average Girl, Porn-Like Sex Likelihood; Scenario Realism) for Both Vignettes*

	<i>M (SD)</i>		<i>t</i>	<i>df</i>	<i>p</i>	<i>d</i>
Taxi Vignette Measures	Control <sup>a</sup>	Experimental <sup>b</sup>				
Christy	51.36 (19.12)	50.56 (21.43)	0.28	196	.782	.04
Average Girl	37.82 (20.15)	33.66 (19.35)	1.48	196	.141	.16
Scenario Realism <sup>c</sup>	24.73 (23.16)	17.77 (18.10)	2.34	175.68	.020	.34
Workplace Vignette Measures						
Tasha	52.26 (18.45)	51.94 (20.76)	0.12	196	.908	.02
Average Girl	37.06 (20.68)	32.23 (20.68)	1.64	196	.103	.23
Scenario Realism	29.78 (26.96)	25.63 (21.13)	1.22	197	.226	.17

<sup>a</sup>  $n = 95$ . <sup>b</sup>  $n = 105$ . <sup>c</sup> assumption of homogeneity of variances violated thus Welch's  $t$  test used in place of Student's  $t$  test.

### Effect of Pre-Experimental Exposure

To assess the effect of pre-experimental exposure to pornography, mean taxi vignette scores were compared between those who had not seen taxi-themed pornography in the previous six months and those who had. Similarly, workplace vignette scores were compared between those who had not seen workplace-themed pornography in the previous six months and those who had. The results of these analyses are presented in Figure 11.2 and Table 11.4.

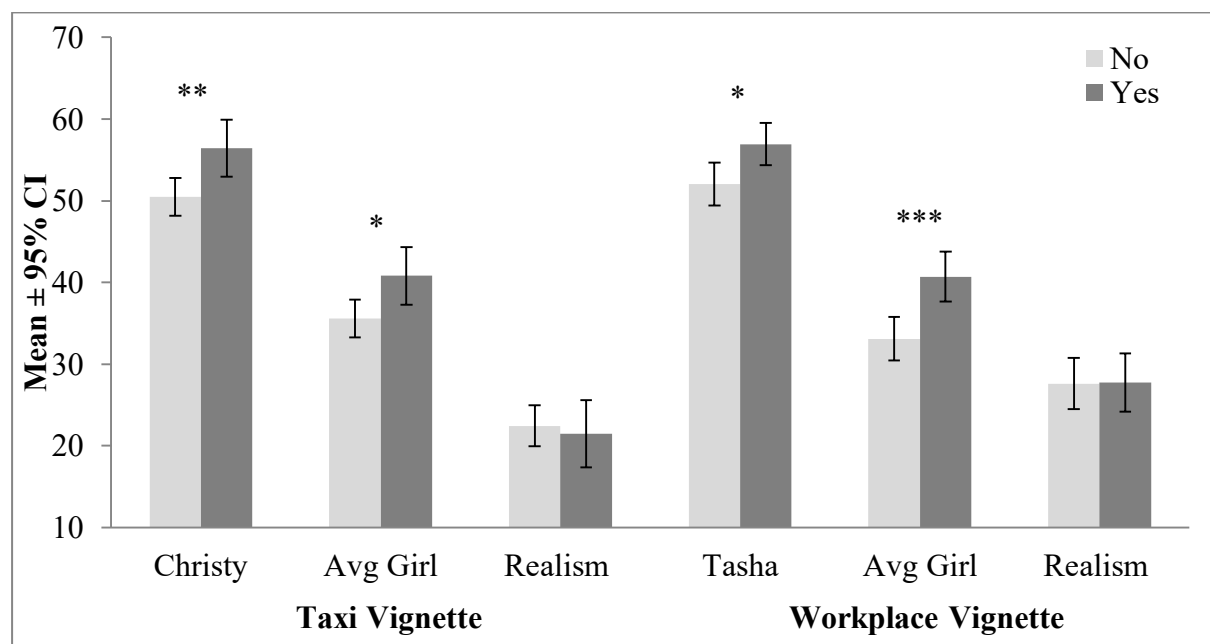


Figure 11.2. Mean scores and 95% CIs for study outcome measures (named character, porn-like sex likelihood; average girl, porn-like sex likelihood; scenario realism) by pre-experimental exposure group (“Use of taxi-themed pornography in previous six months?” for taxi vignette measures, and “Use of workplace-themed pornography in previous six months?” for workplace vignette measures). \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

Table 11.4

*Comparison of Pre-Experimental Exposure Groups on Outcome Measures (Named Character, Porn-Like Sex Likelihood; Average Girl, Porn-Like Sex Likelihood; Scenario Realism) for Both Vignettes*

	<i>M (SD)</i>		<i>t</i>	<i>df</i>	<i>p</i>	<i>d</i>
Use of taxi-themed pornography, last six months?	No <sup>a</sup>	Yes <sup>b</sup>				
Christy	50.48 (19.76)	56.45 (19.55)	−2.80	404	.005	−.30
Average Girl	35.60 (19.67)	40.80 (19.87)	−2.43	403	.016	−.26
Scenario Realism	22.43 (21.64)	21.49 (22.98)	0.39	401	.695	.04
Use of workplace-themed pornography, last six months?	No <sup>c</sup>	Yes <sup>d</sup>				
Tasha <sup>e</sup>	52.06 (20.60)	56.93 (17.16)	−2.60	395.16	.010	−.25
Average Girl	33.11 (20.89)	40.71 (20.14)	−3.65	401	>.001	−.37
Scenario Realism	27.62 (24.65)	27.76 (23.40)	−0.06	403	.953	−.01

<sup>a</sup>  $n = 284$ . <sup>b</sup>  $n = 122$ . <sup>c</sup>  $n = 239$ . <sup>d</sup>  $n = 169$ . <sup>e</sup> assumption of homogeneity of variances violated thus Welch's  $t$  test used in place of Student's  $t$  test.

Further analysis was then performed to determine whether these between-group differences were simply the result of groups differing on confounding variables. Exposure groups were compared on a number of possible covariates (age, overall level of pornography use, agreeableness, self-deceptive enhancement, and impression management) using independent samples *t* tests. The taxi-themed pornography exposure groups were found to significantly differ on age,  $t(388) = 2.12, p = .035$ , Cohen's  $d = .23$ , and overall level of pornography use,  $t(405) = -3.97, p < .001$ , Cohen's  $d = -.43$ . The workplace-themed pornography exposure groups were found to significantly differ on overall level of pornography use only,  $t(404) = -5.79, p < .001$ , Cohen's  $d = -.58$ .

Analysis of covariance was used to assess the effect of pre-experimental exposure to taxi-themed pornography on the taxi vignette outcome measures after adjusting for age and overall level of pornography use. The effect of past exposure to taxi-themed pornography on named character likelihood ratings remained significant,  $F(1, 378) = 4.21, p = .041, \eta_p^2 = .011$ . However, the effect was no longer significant for the average girl likelihood ratings,  $F(1, 377) = 1.68, p = .196, \eta_p^2 = .004$ .

The effect of pre-experimental exposure to workplace-themed pornography after adjusting for overall level of pornography use was then assessed. Past exposure to workplace-themed pornography continued to have a significant effect on both named character likelihood ratings,  $F(1, 400) = 5.29, p = .020, \eta_p^2 = .013$ , and average girl likelihood ratings,  $F(1, 395) = 13.07, p < .001, \eta_p^2 = .032$ , after adjusting for overall level of pornography use.

## Discussion

This study assessed whether exposure to pornography impacts men's judgements about the likelihood of women engaging in, and enjoying, porn-like sex across two scenarios: one in which a male taxi driver propositions a female passenger, and one in which a male boss propositions a female employee. Experimental exposure to taxi-themed pornography

was not found to impact participants' judgements of women (Hypotheses 1 and 2). Those in the experimental exposure group did not judge women to be any more likely to engage in porn-like sex with a taxi driver or their boss than those in the control group. These findings held even when potential moderators (agreeableness and past use of taxi-themed pornography) were taken into account.

The lack of an experimental effect runs counter to sexual script theory. Several possible explanations can be given. First, it may be the case that the amount of experimental exposure to pornography (22 min) employed in the study was not enough to produce an effect. This being said, previous studies (Hald & Malamuth, 2015; Hald, Malamuth, & Lange, 2013) have been able to produce an experimental effect (after accounting for moderating variables) based on a similar level of exposure (25 min). Second, past exposure to taxi-themed pornography may have “drowned-out” the difference between the control and exposure group in terms of exposure to the stimulus material. As was mentioned above, taxi-themed pornography was chosen for the experimental stimulus material as it was reasoned that participants would be less likely to have consumed a great deal of such material in the recent past. However, use of taxi-themed pornography was still relatively common among the sample, with almost one-third of participants having accessed taxi-themed pornography in the six months prior to the experiment. Third, the experimental stimulus material, or the experimental situation itself, may have induced participants to think more critically about the representativeness of taxi-themed pornography. Wright's (2011)  $\Delta$ AM postulates that audience factors are important in determining the effect of sexual media exposure. For example, it is argued that pornography is less likely to affect the attitudes and behaviors of individuals who are more willing, or better able, to critically evaluate the scripts presented in sexual media. Similarly, as part of his heuristics processing model of cultivation effects, Shrum (2001; 2009) suggests that the effect of media on attitudes is moderated by

consumers' ability and motivation to think critically about the source of a message. In line with the argument that the experimental exposure primed participants' to be more critical in their judgements, those in the experimental stimulus group rated the taxi vignette as significantly *less* realistic than the control group. Furthermore, this effect on realism scores was not seen for the workplace-themed vignette.

Hypotheses 3 and 4 were supported, that is to say, an effect was found for past exposure to pornography. Those who had consumed taxi-themed pornography in the six months prior to the study judged the named female character described in the taxi vignette as being more likely to engage in, and enjoy, porn-like sex with a taxi driver (even after adjusting for group differences in age and overall level of pornography use). Similarly, those who had consumed taxi-themed pornography in the six months prior to the study also judged the average women as being more likely to engage in, and enjoy, porn-like sex with a taxi driver. However, this finding was no longer significant once group differences in age and overall level of pornography use were controlled for. In this particular analysis, age was found to be significantly negatively associated with the outcome measure (whereas the association between overall level of pornography use and the outcome measure was found to be non-significant). Thus, the initial difference on this measure may have simply been a reflection of consumers of taxi-themed pornography tending to be younger, and younger men being more likely to believe that women are willing to engage in porn-like sex with a near stranger. It is unclear why age would be correlated with participants' beliefs in this way. It may be the case that, compared to older people, younger people are more likely to believe that casual sex is socially acceptable, and thus more likely to believe that casual sex occurs frequently. Empirical evidence supports the notion that younger people tend to be more accepting of casual sex (Twenge, Sherman, & Wells, 2015).

Those who had consumed workplace-themed pornography in the six months prior to the study judged women (across both outcome measures) to be more likely to engage in, and enjoy, porn-like sex with their boss (even after adjusting for group differences in overall level of pornography use).

As outlined in the Introduction, the selective exposure hypothesis asserts that individuals seek out sexual media that conforms to their pre-existing beliefs. Given that this study found an effect for past exposure, but no evidence of an experimental effect, it could be argued that the study's results are better explained by the selective exposure hypothesis than sexual script theory. However, past exposure was not found to affect perceptions of the realism of the study vignettes. Those who had consumed taxi-themed pornography in the previous six months did not rate the taxi vignette as more realistic than those who had not. Similarly, those who had consumed workplace-themed pornography did not judge the workplace vignette as more realistic than those who had not. This lack of a difference between the past exposure and non-exposure groups in terms of perceptions of the realism of the vignette scenarios undermines the selective exposure hypothesis as an explanation for the effect of past exposure. It is also possible that the observed effect of past exposure is the result of an unmeasured confounding variable (e.g., sexual liberalism).

However, if the observed effect for past exposure really does reflect changes to participants' sexual scripts as a result of their sexual media consumption, why was an experimental effect not also observed? While some potential explanations for the lack of an experimental effect have already been outlined above, the *sleeper effect* is also worth considering. The sleeper effect posits that consumers are more likely to be persuaded by a non-veridical source after a time delay. While the exact cause of the sleeper effect is debated (see Kumkale & Albarracín, 2004; Priester, Wegener, Petty, & Fabrigar, 1999) it has been suggested that the effect may be due to consumers forgetting the non-credible nature of a



particular source, but not the source's message (Pratkanis, Greenwald, Leippe, & Baumgardner, 1988). Similarly, in the current study a process similar to the sleeper effect might have resulted in participants rejecting the sexual scripts depicted in the experimental stimulus videos (as participants recognized that pornography is a non-veridical source of sexual information), but accepting pornographic scripts they had been previously exposed to, as a result of these scripts becoming dissociated from their source with the passage of time. Alternatively, it may simply be the case that the experimental manipulation was not able to capture the more powerful cumulative effect of multiple exposures across time. In support of this, Riddle (2010) found that one session of exposure to vivid, violent television did not impact participants' perceptions of crime, whereas repeated exposure did.

### **Limitations and Future Directions**

This study had a number of limitations. First, this study employed a non-probability sample. For this reason we should be somewhat cautious of generalizing from the current study to all men (especially older, less educated men who were underrepresented in the sample). Second, many participants did not view the stimulus videos in their entirety (see Validity and Manipulation Check). This reduced the study's power and may have introduced self-selection bias. It also meant that some participants may not have been experimentally exposed to all of the sex acts referred to in the vignettes (e.g., participants who did not watch to the end of either videos would not have been experimentally exposed to external ejaculation). However, the majority of sex acts discussed in the vignettes occurred in both stimulus videos. Therefore, it is probable that those who watched around three-quarters of the stimulus videos (the cut-off for inclusion in the analysis of the experimental effect) would have been experimentally exposed to the majority of the sex acts discussed in the vignettes. The fact that many of the participants did not view the stimulus videos in their entirety may be a reflection of the way users actually consume pornographic video content (for example,

skipping to particular sex acts within a video, rather than watching a video from start to finish) and therefore reflect the ecological validity of the study. To the authors' best knowledge, there is no existing research investigating how consumers actually interact with online pornographic videos. However, many pornographic websites—for example, Pornhub, Redtube, and Youporn (which was used to source the experimental stimulus clips)—make it easy for users to skip to specific content within a video. For example, all of the aforementioned websites are designed such that when the cursor is placed on the video progress bar, a thumbnail of that video frame is displayed. The inclusion of these kinds of features by website designers suggest that many users skip to specific content (e.g., particular sexual acts), rather than watching videos from start to finish.

Conducting the current study in a laboratory setting (rather than administering the study online) likely would have reduced non-compliance with the experimental stimulus instructions. However, we consider the non-compliance that occurred to be part of the trade-off between ecological validity and experimental control. We contend that correlational studies, highly controlled laboratory studies, and more ecologically-valid experimental studies all have something to offer our understanding of sexual media effects, and should be considered in tandem.

Another limitation of the study is that the experimental exposure occurred on a single occasion only, thus the cumulative effect of multiple exposures across time was not captured. Furthermore, a large percentage of the sample (roughly half) had been exposed to taxi-themed pornography in the past. This somewhat undermined our objective to avoid the past exposure problems associated with previous experimental studies into the effects of pornography. In the future, researchers may wish to employ more obscure genres of pornography for use as stimulus material. However, given the near ubiquity of pornography use among men, it may be difficult to find pornographic genres that potential samples have

had no contact with. Finally, the study did not assess whether participants masturbated while watching the stimulus materials (which is possible given that this was an online study).

Currently, very few sexual media effects studies have accounted for the role of masturbation (Hald et al., 2014). This is despite evidence indicating that pornography use is most typically accompanied by masturbation (Böhm et al., 2014; Carvalheira, Træen, & Štulhofer, 2015). Hald et al. (2014) identifies two ways in which masturbation (and subsequent ejaculation) may impact the effects of sexual media: 1) by acting as a positive reinforcer, and 2) by reducing arousal (post-ejaculation). Notably, arousal has been found to mediate the relationship between experimental exposure to pornography and anti-women attitudes (Hald & Malamuth, 2015; Hald, Malamuth, & Lange, 2013).

In the future researchers may want to 1) assess the effects of sexual media among more diverse samples, 2) utilize both laboratory and ecologically-representative experimental designs, 3) inquire about participants' usual style of pornography consumption (e.g., watching videos from start to finish, versus watching particular sex acts only), 4) experimentally expose participants to pornography repeatedly, 5) select very obscure genres of pornography to avoid the past exposure problem (if focusing primarily on the effect of experimental exposure), and 6) assess the effect of masturbation (although we acknowledge that there are ethical and practical obstacles to doing this).

## **Conclusions and Implications**

Whereas previous studies have tended to focus on pornography's influence on consumers' attitudes (e.g., sexism), the current study focused on pornography's influence on judgements of frequency and probability, namely men's judgements of the likelihood of women engaging in porn-like sex in situations similar to those depicted in particular genres of pornography (taxi- and workplace-themed pornography). The study provides some evidence that pornography can influence consumers' judgements of social reality, by affecting

consumers' perceptions of the likelihood of women enthusiastically engaging in the kinds of sexual practices commonly depicted in pornography.

It could be argued that judgments about the likelihood of women having pornographic sex are less important than pornography's effects on more general attitudes, such as sexism. However, we would suggest that pornography influencing such probability judgements may still have widespread societal implications, especially given the high prevalence of men's pornography use. Furthermore, it is possible that perceptions around the likelihood of women engaging in, and enjoying, porn-like sex may themselves act to influence attitudes and behaviours more generally. For example, as is discussed above (see Introduction), Wright et al. (2016) found that pornography consumption is predictive of judging condom usage to be less common among one's peers, which in turn, is associated with personally engaging in unprotected sex. In the same way, judging women to be more likely to engage in, and enjoy, porn-like sex may influence pornography users' conceptions of sexual norms, such that users are more likely to believe porn-like sex to be the norm in both short- and long-term relationships. Conceivably this could flow-on to affect consumers' attitudes (e.g., causing consumers to adopt more positive attitudes toward personally engaging in porn-like sex) and behaviors (e.g., causing consumers to imitate the sexual practices depicted in pornography with sexual partners, or even causing consumers to proposition strangers in the ways depicted in some pornography). In support of this notion, extant cross-sectional research suggests a positive association between pornography use and holding a preference for engaging in the kinds of sexual practices commonly depicted in pornography (Miller, McBain, Li, & Raggatt, 2019; E. M. Morgan, 2011). Shifts in pornography users' conceptions of sexual norms could potentially foster sexual dissatisfaction within relationships. For example, pornography users may feel a sense of relative deprivation if their partners are unwilling to engage in, what they consider to be, "normal" sexual practices. Alternatively, pornography non-users may feel

resentment if they are expected, or pressured, to engage in sexual practices which they have no interest in. Similarly, because pornography consumption reinforces the notion that porn-like sex is wildly pleasurable for all involved, pornography users may feel upset (or even sexually inadequate) if their partners do not find pornographic sex to be pleasurable.

Alternatively, it could be argued that expanding societal conceptions around what is sexually normative might have positive repercussions, by reducing the stigma associated with sexual practices which have previously been stigmatized. Whether educating consumers on the non-representative nature of pornography would be enough to nullify any deleterious effects of pornography use is unclear.

## **Chapter 12: Conclusion**

The primary goal of this thesis has been to empirically investigate men's use of pornography and its effect on men's attitudes and behaviours, especially in relation to women. The structure of this thesis was framed around the question: Who is watching what, and to what effect? In this chapter an overview of thesis findings is provided, individual findings are discussed with reference to the thesis as a whole, and connections are made between findings and existing theoretical models of sexual media socialisation. Implications of this research, for both society and individuals, are then discussed. Finally, research limitations are highlighted, before recommendations for future research are made. Given that the limitations of each study were discussed at length in earlier chapters, thesis limitations are only broadly outlined in this chapter. Where possible, avenues of future research are suggested in response to these limitations.

### **Summary of Main Findings**

#### **Who is Watching?**

The findings of the thesis support the notion that pornography use is commonplace among young men. In both Survey 1 and the experiment more than 90% of men reported having viewed pornography at some point. In Survey 1 median frequency of pornography consumption in the past six months was 3–4 times per week, and in the experiment this figure was 1–2 times per week. In Survey 2, median frequency of pornography consumption was 1–2 times per week among those who had seen pornography in the past six months (around 70% of the sample). The research outlined in Chapter 2 suggests that around half of men are weekly pornography viewers. Weekly viewer figures were greater than 50% in the first survey and experiment, but this may be a reflection of the relatively young age of participants in the first survey and experiment.

Survey 1 found that on average men are first accessing pornography in their early teens and starting to regularly consume pornography soon after that. Furthermore, Survey 1 provides some evidence that in contemporary society men are regularly accessing pornography from an earlier age than was the case for earlier generations. The review presented in Chapter 2 and Survey 1 both suggest that the Internet is the most common method for accessing pornography and that pornography is accessed primarily for the purposes of solitary masturbation. Indeed, the findings of Survey 1 suggest that using pornography with a sexual partner is uncommon. It was also found that relationship status has little bearing on level of pornography consumption. Men in relationships do not appear to consume less pornography than unpartnered men.

As outlined in Chapter 4, sexual strategies theory posits that, because of their low minimum parental investment, men may find short-term mating strategies especially appealing (Buss, 1998; Buss & Schmitt, 1993, 2011). The results of the thesis around the high prevalence and frequency of men's pornography use are consistent with the predictions of sexual strategies theory. In earlier chapters it was suggested that part of the appeal of pornography may be that it allows consumers to engage in a dual-mating strategy, by vicariously engaging in many virtual, short-term partnerships while simultaneously maintaining a real-world, long-term partnership. The Survey 1 finding that partnered men consume roughly the same level of pornography as single men supports this idea. Indeed, it seems that many men consume pornography for the purposes of masturbation *in addition to* having partnered sex, rather than *in place of* partnered sex.

### **Watching What?**

Given the seemingly ubiquitous use of pornography among young men, it is important to know what messages pornography users are being exposed to through their consumption. The review of content analytic studies presented in Chapter 3 indicates that sex

acts such as vaginal sex, fellatio and external ejaculation are virtually ubiquitous within contemporary, mainstream pornography. Additionally, cunnilingus, solo masturbation, or masturbation of a partner were all also found to be relatively common. The review also highlights the difficulty of defining violence within pornography. While the findings of Chapter 3 suggest that extreme sexual violence (e.g., rape) is infrequently depicted in mainstream pornography, acts which some would consider to be violent (e.g., spanking, external ejaculation, and gagging) are common. These acts are typically directed at women by men and are characteristically depicted as being mutually pleasurable for both parties. Chapter 3 also indicates that women in pornography typically enthusiastically engage in any, and all, sexual requests. Findings around the degree of degradation of women within mainstream pornography were mixed. On some measures, men in pornography were found to be more agentic than women; on other measures, women were more agentic than men. It appears that some genres of pornography are more likely to depict men in control of sexual encounters (teen pornography) and some are more likely to show women being in control (MILF pornography). My review of website meta-data revealed teen and MILF pornography to be extremely popular genres, along with lesbian and step-relative pornography.

While content analysis indicated that extreme violence is relatively uncommon in mainstream pornography, large segments of the Survey 1 sample reported having seen rape-simulation pornography, forced-sex pornography, violent pornography, or humiliating/degrading pornography at some point (approximately 35.0%, 40.7%, 58.0%, and 55.1% of the sample, respectively). However, the number of participants who reported regularly viewing such materials was much lower (5.4%, 6.7%, 17.9%, and 15.5%, respectively). Men who regularly view either violent or humiliating pornography were found to consume significantly more pornography than men who do not consume either violent or



humiliating material. The literature outlined in Chapter 2 also support the idea that relatively few men regularly consume violent pornography.

### **To What Effect?**

**Self-perceived effects.** Survey 1 findings suggest that most men self-perceive pornography to have a largely positive influence on their lives. As a whole, the Survey 1 sample self-perceived their pornography use to have a largely positive influence on their sex lives, sexual knowledge, attitudes toward sex, attitudes toward women, and life in general. This was true of both self-identified heterosexual men and gay and bisexual men. This is not to say that the surveyed men reported no negative effects, or that no participants felt that their pornography use had had a net negative impact on their lives. As discussed in Chapter 7, these findings are consistent with extant research into men's perceptions of their own pornography use (e.g., Hald & Malamuth, 2008; Kvalem, Træen, Lewin, & Štulhofer, 2014).

Different factors appear to be predictive of the self-perceived positive and negative effects of pornography use among heterosexual men. Greater pornography consumption, being younger, being religious, and having never been a regular user of pornography were all associated with greater self-perceived negative effects. Greater pornography consumption was predictive of more self-perceived positive effects.

**Effect on relationships.** Surveys 1 and 2 revealed both confirmatory and novel findings in relation to pornography's influence on men's relationships. Consistent with past research (e.g., Wright, Tokunaga, Kraus, & Klann, 2017), higher frequency of pornography use was associated with sexual and relationship dissatisfaction (although the magnitude of this effect was small). Furthermore, pornography use was found to be predictive of a preference for engaging in the sexual practices commonly depicted in pornography (a finding consistent with E. M. Morgan, 2011, as well as theoretical models of sexual media socialisation). However, this did not appear to result in feelings of sexual or relational

dissatisfaction, as has been suggested. That is, preference for porn-like sex was not found to negatively mediate the relationships between pornography use and sexual or relationship satisfaction. On the other hand, pornography use was found to have significant negative indirect effects on sexual and relationship satisfaction through frequency of masturbation. This finding hints at a possible cause of the negative relationship between pornography use and sexual and relationship satisfaction that has been previously observed.

**Effect on attitudes toward women.** In terms of pornography's impact on problematic attitudes and behaviours toward women, in the first survey overall level of general pornography use was not found to be associated with old-fashioned sexism, modern sexism, relationship hostility, or reported rape likelihood. However, higher levels of general pornography use were observed to be predictive of a greater reported likelihood of the use of sexual force. While general pornography use was, for the most part, unrelated to the outcome measures, the use of violent or humiliating pornography proved to be a more potent predictor. Use of violent or humiliating pornography was associated with greater relationship hostility, greater reported likelihood of rape, and greater reported likelihood of sexual force. However, it was unrelated to modern sexism or old-fashioned sexism. Violent pornography consumption having a more pronounced association with sexual aggression, when compared to general pornography consumption, is consistent with past research (e.g., Wright, Tokunaga, & Kraus, 2016b).

The notion that consuming a great deal of pornography will result in holding more problematic attitudes toward women is commonly purported. Accordingly, the lack of an observed association between general pornography use and the sexism measures is somewhat surprising. However, it is important to keep in mind that the idea that pornography use promotes sexism involves two assumptions: 1) that all, or a great deal of, mainstream

pornography is sexist, and 2) that pornography use can alter consumers' schemas to be more like the world depicted in pornography via some kind of media-effects process.

Whether the content analytic studies outlined in Chapter 3 support this first assumption is a matter of debate. Certainly, these studies indicated that in some pornography men are depicted as dominating and women are depicted as being subordinate, but in much pornography this relationship is reversed, and it appears that a great deal of pornography does not depict gender power relations in any overt way. This may be especially true of the clips carried by large tube-sites. The review outlined in Chapter 3 indicates that tube-site clips tend to be short and many are produced by amateurs. Short clips and amateur clips may be less likely to contain any plot or story elements, instead starting *in media res* ("in the middle of things"), and thus would be less likely to feature sexist storylines (e.g., males in positions of power ordering female subordinates to have sex, as in pornographic films like *Debbie Does Dallas*<sup>1</sup>). For these reasons, it is questionable as to whether a great deal of the pornography which consumers typically view contains messages indicating that women are subordinate to men on a societal level (which is what was measured by the sexism scales used in Survey 1).

This is not to say that pornography does not communicate messages about women's position in relation to sex. Commonly depicted acts such as spanking, gagging, or facial ejaculation, or even the bias toward displaying fellatio over cunnilingus, may be interpreted by consumers as indicating that women are subordinate within the sexual domain. Certainly, it is possible that some men may generalise from believing that women are subordinate to men in the bedroom, to believing that women are subordinate to men more generally. However, many consumers may interpret acts like spanking, gagging, or external ejaculation as mutually enjoyable play between equals, especially if these acts are met with pleasure and enthusiasm by the receiving sexual partner (as the research outlined in Chapter 3 suggests is

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<sup>1</sup> See McKee, Albury, and Lumby (2008) for a discussion of the problematic depictions of women in *Debbie Does Dallas*.

typical). The finding that the use of violent pornography is associated with greater hostility toward women within the context of a relationship supports this argument. Obviously, violent pornography, as compared to non-violent pornography, is more likely to contain messages indicating that it is sexually gratifying to mistreat women or that women are subservient in the bedroom. Thus, observing a significant association between violent pornography use and hostile attitudes toward women within the context of relationships, while also finding no significant association between general pornography use and sexism, is perhaps to be expected. Similarly, it seems likely that those who regularly consume violent pornography will be exposed to messages indicating that rape and sexual force is positive, or at least permissible. Thus, the observed positive association between violent pornography use and reported likelihood of rape and sexual force is not particularly surprising.

Given the above discussion, the finding that greater general pornography consumption is associated with a greater reported likelihood of the use of sexual force, but not rape, is worth briefly considering. Certainly, content analyses indicate that modern, mainstream pornography infrequently depicts rape. As such, one might expect that general pornography use would be orthogonal to reported rape likelihood. Whether modern, mainstream pornography commonly depicts the use of “sexual force” is a more nuanced question. As mentioned above, content analyses indicate that acts like gagging are common in mainstream pornography. Gagging might be interpreted by audiences as sexual force, given that it involves pushing the sexual partner to the point of discomfort. A similar argument might be made for spanking or rough sex more generally (both of which appear to be common in mainstream pornography). Thus, it can be argued that this finding is also compatible with media-effects models in which exposure to media messages shape audience schemas to be consistent with these media messages. Of course, when thinking about the findings of the surveys in relation to pornography’s effect on men’s attitudes toward women it is important

to also consider alternative explanations. For example, proponents of the selective exposure hypothesis (see Chapter 11) might argue that the survey findings reflect consumers' propensity to seek out pornography which mirrors their existing attitudes. An experimental study was included in this thesis in response to this problem of determining direction of causation, as observing an experimental effect would provide strong evidence for pornography use causing a shift in consumers' judgements and perceptions of women.

In the experiment, experimental exposure to pornography was not found to influence men's perceptions of the likelihood of women engaging in the kinds of sexual practices commonly depicted in pornography. This may indicate the lack of a causal relationship (and thus support a selective-exposure account over a media-effects account). However, this lack of an experimental effect may also reflect methodological issues with the study (e.g., the experimental situation could have induced participants to think more critically about the representativeness of pornography; for a more in-depth discussion of the experiment's limitations see Chapter 11).

While experimental exposure was not found to influence participants' perceptions of the likelihood of women engaging in porn-like sex, past exposure to taxi-themed pornography was associated with judging female passengers to be more likely to engage in porn-like sex with a male taxi driver, and past exposure to workplace-themed pornography was associated with judging female employees to be more likely to engage in porn-like sex with a male boss. In the previous chapter, it was argued that the specificity of the scenarios employed in the experiment, and the genres of pornography assessed, makes a selective exposure explanation for these findings seem less tenable. Thus, these findings might be considered (modest) evidence for pornography use influencing consumers' judgements and perceptions.

**Moderators of effects.** Survey 1 found no evidence to suggest that the relationship between general pornography use and the aforementioned attitudinal and behavioural outcome measures—old-fashioned sexism, modern sexism, relationship hostility, reported rape likelihood, and reported likelihood of sexual force—were moderated by either agreeableness or the perceived realism of pornography. However, evidence was found for perceived realism *mediating* the relationship between pornography use and old-fashioned sexism, modern sexism, and relationship hostility. Here the data were consistent with a model in which greater pornography use is associated with perceiving pornography to be more realistic, which is then associated with greater sexism and relationship hostility. As discussed in Chapter 8, other studies (Peter & Valkenburg, 2006, 2010) have similarly found perceived realism to mediate the relationship between pornography use and attitudes. In the thesis experiment, agreeableness did not moderate the relationship between experimental exposure and the outcome measures.

Readers will recall from Chapter 4 that the acquisition, activation, and application model of sexual media socialisation (<sub>3</sub>AM; Wright, 2011) and the hierarchal confluence model of sexual aggression (HCM; Malamuth & Hald, 2017) both posit that audience factors may moderate the effect of a media message on the consumer. Wright (2011) argues that perceptions of the veracity of the media message is one such audience factor, the idea being that those who believe a message to be realistic are more likely to be influenced by it. The HCM highlights the importance of hostile masculinity (HM) and an impersonal sex (IS) orientation—which Malamuth and Hald (2017) suggest can be loosely indexed by measuring agreeableness—in influencing the relationship between pornography use and perceptions of the acceptability of violence against women. The findings of this thesis do not support these assertions. However, this is not to say that there are no audience factors which moderate the effect of sexual media messages, or that perceived realism and agreeableness do not play a

moderating role in some situations. Furthermore, in the case of agreeableness, it may just be that agreeableness is not a sensitive predictor of HM or IS. While it seems likely that those high in HM or those with an IS orientation would naturally be low in agreeableness, not everyone who is low in agreeableness would be high in HM or have an IS orientation.

## **Implications**

### **Implications for Society**

In terms of whether pornography influences the social judgements of consumers, the results of this thesis were mixed. In Chapter 4 I distinguished between *specific scripting effects* (also called *first-order media effects*)—media’s effect on social judgements relating to frequency and probability—and *abstract scripting effects* (also called *second-order media effects*)—media’s effect on social judgements relating to attitudes, values, and behaviours. This thesis found possible evidence of specific scripting effects in relation to perceptions of the probability of women engaging in porn-like sex. Possible evidence for abstract scripting effects were found in relation to desire to engage in porn-like sex, beliefs about the acceptability of hostility toward women within the context of relationships, and self-reported likelihood of rape and use of sexual force. The strongest potential effects related to messages frequently and unambiguously communicated in sexual media (e.g., *porn-like sex is normal and enjoyable* messages in mainstream pornography and *sexual violence is acceptable* messages in violent pornography).

The reason that pornography’s potential effect on social judgements garners interest from academics, social activists, and the general public, is because it is assumed that any effect at the individual level will have larger societal repercussions (e.g., a less gender-egalitarian society or a society where sexual assault occurs more frequently). While this thesis found some evidence for the kind of media effects which would have negative social

repercussions, the research also provides clues as to how to minimise pernicious effects of pornography.

The finding that perceptions of the realism of pornography may mediate the relationship between men's pornography use and their attitudes toward women suggests a possible method for minimising the ill-effects of pornography: educating consumers on the unrepresentative nature of pornography. This could be done, for example, through school-based sexual education programs (via the inclusion of a unit on sexual media literacy). Such programs could highlight unrealistic aspects of pornography—in terms of sex, sexuality, and social relationships—and provide more accurate information in their place.<sup>2</sup> Ideally, any such education programs would be incorporated into curriculum encountered during the early teen years, given that this is around the average age at first exposure to pornography (and a time at which young people would have little real-world relationship experience to draw on when mentally assessing the veracity of what they see in pornography). It is suggested that any pornography education programs be designed in a way that does not vilify the use of pornography, as doing so may result in young people developing feelings of guilt and anxiety over, what we have seen, is a common behaviour.<sup>3</sup> Programs should also avoid suggesting that pornography use has a substantial negative influence on most consumers' lives, given that this idea does not appear to reflect most consumers' self-perceptions.

The idea that pornographic scripts can shape consumers' schemas implies another possible method for nullifying the harmful effects of pornography: producing, or encouraging others to produce, pornography which contains pro-social messages (thereby shifting consumers' schemas in a more positive direction). Some authors (Rosser et al., 2012; Træen, Hald et al., 2014) have made a similar argument in reference to condom usage among gay

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<sup>2</sup> Recent research by Vandenbosch and van Oosten (2017) provides some early evidence to indicate that school-based pornography literacy classes can reduce pernicious sexual media effects.

<sup>3</sup> Recent research indicates that young people want sex education programs to address issues of pornography-related shame (Dawson, Gabhainn, & MacNeela, 2019).



and bisexual men. These authors suggest that pornography in which characters negotiate safe sex and condom use could be utilised to normalise and encourage such behaviours. Similarly, encouraging the production and consumption of pornography with positive social messages (e.g., female characters showing agency or male and female characters respectfully negotiating issues of consent) may also have positive social repercussions.

### **Implications for Individuals and Clinicians**

This research also provides some insights into men's experience with pornography on a personal level; insights which may be of use to those who work with men in a counselling or therapeutic capacity. First, it appears that most men feel that pornography has a net-positive impact on their lives, thus clinicians should not adopt a negative effects paradigm by default. Of course, it should also be kept in mind that many men feel that pornography has some degree of negative influence on them. It is suggested that those working with men be open to discussing what kind of effect the client feels that pornography has had on his life, perhaps using the PCES-SF as a starting point for discussion. The consistency between the self-reported effects of pornography among the first survey sample and the effects of pornography as measured by other scales is notable (e.g., few men self-perceived that pornography had had a negative impact on their view of the opposite sex, which is consistent with the observed orthogonal relationships between general pornography use and the sexism measures). This consistency would imply that most men are good judges of the impact that pornography has on them. As discussed above, if a clinician feels that a client's sexual self-schemas have been distorted by pornography, discussions around sexual media literacy may be warranted.

The findings also highlight the important role pornography-related masturbation plays in the association between men's pornography use and sexual and relationship satisfaction. Relationship counsellors may wish to consider masturbation frequency, not just pornography

use, when working with sexually dissatisfied men. Educating clients on the male sexual response cycle and the concept of refractory periods may be useful in helping clients understand how their pornography use may be impacting their sense of sexual satisfaction. Finally, the findings in relation to the self-perceived effects of pornography use, and the finding that pornography use may have a positive indirect effect on sexual satisfaction through a bolstered interest in sexual variety, suggests that pornography could potentially be harnessed to help men explore their sexual identity and preferences.

### **Limitations and Future Research**

One important limitation of the thesis surveys was the use of a cross-sectional research design, as this undermined my ability to be definitive regarding causal direction. This is especially relevant in relation to the mediational model tested in Chapter 9 (which assessed whether desire for porn-like sex or masturbation frequency mediates the relationship between pornography use and sexual and relational satisfaction). As such, it was only possible to conclude whether the data are consistent with the proposed mediational model. The slippery slope argument (see Chapter 4) is another theory which could not be thoroughly assessed using cross-sectional data. The slippery slope argument posits that, over time, high-volume pornography users may progress from viewing mainstream pornography (in which women are less likely to be sexually dominated and objectified) to viewing more extreme pornographic material (in which women are more likely to be sexually dominated and objectified) due to habituating to the less extreme material. In Chapter 10 it was observed that those who reported using violent pornography consumed significantly more pornography than those who do not use violent pornography; a finding consistent with the slippery slope argument, but also open to other interpretations (e.g., perhaps high-volume viewers are more likely to come across violent pornography simply by virtue of consuming a great deal of pornographic material). Longitudinal study designs may help elucidate these issues.

A multi-wave panel study (consisting of at least three waves) of partnered men, where pornography use, desire for porn-like sex, masturbation frequency, sexual satisfaction, and relationship satisfaction are assessed at each wave could confirm the findings reported in Chapter 9. The assertion that masturbation frequency is a mediator of the relationship between pornography use and sexual and relationship satisfaction would be confirmed if pornography use at Wave 1 is found to be predictive of masturbation frequency at Wave 2, which in turn is found to be predictive of sexual and relationship satisfaction at Wave 3. Another approach to investigating this phenomenon might involve instructing a sample of partnered men to decrease the frequency of their masturbation and observing how this impacts the men's sexual and relationship satisfaction. Once again, if masturbation mediates the relationships as suggested, one would expect to see marked increases in the sample's sexual and relationship satisfaction over the intervention period.

Assessing the slippery slope argument longitudinally would involve tracking, across time, the genres of pornography consumed by a sample of men. The sample's taste in pornography becoming progressively more violent would provide strong evidence for the legitimacy of the slippery slope argument. For the sake of the study, it would be most useful if the sample varied in terms of level of pornography use so that it could be divided into low- and high-volume users for further analysis (as the slippery slope argument may hold for high-volume users but not low-volume users). Hald and Štulhofer's (2016) recent measure of paraphilic pornography use would be a useful instrument in such a study.

Another limitation of the thesis studies (especially the first survey and experiment), was sample representativeness. The samples collected as part of the first survey and experiment were young and relatively well educated. This may be especially important for the findings around sexism, as younger, more educated men may be less likely to hold (or if they do hold, express) sexist views. As noted in Chapter 8, while pornography use was

unrelated to sexism in the first survey, other researchers have found evidence for such an association (e.g., Hald, Malamuth, & Lange, 2013). Further probing the relationship between pornography use and general sexism with a more representative sample of men would be useful in confirming if such an association does or does not exist. It would also be useful if future studies on the topic included a measure of sex drive, as recent literature (Baer, Kohut, & Fisher, 2015) indicates sex drive may play an important role in explaining the relationship between pornography use and attitudes supportive of violence against women.

Additional studies could be conducted to confirm the directionality of the relationships between violent pornography use and relationship hostility observed in Chapter 8, and violent pornography use and reported likelihood of rape and sexual force observed in Chapter 10. This is especially important given the plausibility of the selective exposure hypothesis in explaining these results. Longitudinally investigating these relationships is possible. However, one could also design an experiment to test these associations. The previous chapter highlighted the problem of past exposure when attempting to experimentally assess the effects of pornography. However, we have seen that relatively few consumers regularly consume violent pornography, making the past exposure problem less relevant here. Ideally the experiment would have three conditions: a control condition, a violent pornography condition, and a non-violent pornography condition. This would allow the researcher to separate the effect of violent pornography exposure from the effect of pornography exposure more generally. Such an experiment could be administered online or conducted in laboratory conditions. As was outlined in the previous chapter, there are advantages and disadvantages to both approaches. It would also be informative to investigate whether masturbation to orgasm reduces pornography's impact on anti-women attitudes and behaviours (as excitation transfer theory suggests it may; see Chapter 4). Ethically and practically speaking, it would be problematic to include a masturbation condition in an

experimental study, especially a laboratory experiment. However, for an online experiment it may be possible to include items assessing whether participants masturbated during the study.

Finally, future research should aim to further investigate first-order sexual media effects. As it stands, the bulk of the pornography effects literature relates to second-order media effects, with very little attention being paid to first-order effects (outside of pornography's impact on perceptions of the frequency of condom usage, e.g., Wright, Tokunaga, & Kraus, 2016a). One of the goals of the thesis experiment was to redress this imbalance, by assessing the influence of pornography on judgements of the probability of women engaging in, and enjoying, porn-like sex. However, there is still a need for further information on pornography's impact on judgements of probability and frequency in relation to sexual activity more generally (e.g., pornography's impact on men's perceptions of the average penis size, the average length of intercourse, the percentage of people who engage in anal sex or multi-partner sex, the percentage of people who have unprotected casual sex, et cetera). Scripting effects of these kind would have implications for both the mental health of individuals and public health, especially given that first-order effects may act to influence attitudes, values, and behaviours more generally. For example, if pornography distorts consumers' perceptions of the length of the average penis<sup>4</sup> or the average length of intercourse, this may negatively impact consumers' perceptions of their bodies and sexual performance. If pornography distorts perceptions of how commonly young people engage in risky sexual practices, this may result in consumers being more likely engage in such practices.

A cross-sectional study design could be employed to investigate pornography's impact on these kinds of judgements. For example, one could measure the correlation between young people's pornography use and the accuracy of their responses to basic sexual

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<sup>4</sup> See Chapter 3 for evidence indicating that male pornographic performers tend to be non-representatively well-endowed.

health questions. To ascertain if the relationship between pornography use and sexual health knowledge is moderated by exposure to non-pornographic sexual information, past exposure to sexual education could also be measured.

### **Conclusion**

In this thesis I have presented a systematic investigation into men's pornography use and its potential effects. This investigation indicates that pornography use is common and has both beneficial and adverse effects on consumers' lives. The research also highlights the importance of masturbation to understanding the association between pornography use and relational outcomes. In terms of whether pornography influences the attitudes and judgements of consumers, the results of this investigation were mixed. However, this is not unusual of pornography effects research, where findings are seldom clear-cut.<sup>5</sup> Pornography may shape the attitudes and judgements of users, especially in relation to messages which it frequently and emphatically communicates. For better or for worse, pornography appears to be an important component in the network of factors which contribute to the sexual socialisation of men. As pornography continues to become more prevalent within our society, it is incumbent on researchers to continue to (open-mindedly) investigate the ways in which pornography may shape men's sexuality.

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<sup>5</sup> So much so, that one researcher has humorously concluded "Some pornography under some circumstances may affect some people in some ways some of the time" (Slade, cited in M. Campbell, 2017, para. 17).

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## Appendix A

### Note on the Calculation of Pooled Proportions

In Chapter 2, proportions were averaged across multiple samples to create “pooled proportions.” These figures were calculated using the following formula (where  $\hat{p}$  represents a proportion, e.g., the proportion of men who are weekly pornography users in a given study, and  $n$  represents the sample size of a given study):

$$\hat{p}_{pooled} = (\hat{p}_1 n_1 + \hat{p}_2 n_2 + \cdots + \hat{p}_i n_i) / (n_1 + n_2 + \cdots + n_i)$$

An advantage to this approach (as opposed to simply adding each proportion and dividing by the number of studies) is that each study’s influence on the pooled proportion is relative to the size of that study (i.e., larger studies exert a greater influence on the pooled proportion and smaller studies exert a lesser influence).

## Appendix B

### Note on the Calculation of Cohen's $d$

There are a multitude of approaches to calculating Cohen's  $d$  (Cumming, 2012). In this thesis I have followed Cumming's (2012, pp. 288–298) recommendations. For independent-samples  $t$  tests, Cohen's  $d$  was calculated using the following equation:

$$d = \frac{M_2 - M_1}{s_p} \text{ where } s_p = \sqrt{\frac{(N_1 - 1)s_1^2 + (N_2 - 1)s_2^2}{N_1 + N_2 - 2}}$$

For related-samples  $t$  tests, Cohen's  $d$  was calculated using:

$$d = \frac{M_{\text{diff}}}{s_{\text{av}}} \text{ where } s_{\text{av}} = \sqrt{\frac{s_1^2 + s_2^2}{2}}$$

## Appendix C

### Information Pages and Informed Consent

The following appendix provides the information page and informed consent section of each study (i.e., the first and second page of each study).

Survey 1, Study Information:

#### **Pornography Consumption Survey**

You are invited to take part in a research project looking at pornography consumption, attitudes toward pornography and sex, and sexual behaviour among men. The study is being conducted by Daniel Miller and will contribute to a PhD in psychology at James Cook University.

You must be **MALE** and **AT LEAST 18** to participate. The survey is open to males of all sexual orientations and both consumers and non-consumers of pornography. If you agree to participate in the study you will be invited to complete an anonymous questionnaire. The questionnaire should take about 30-40 minutes of your time.

For your participation you can enter the draw to win 1 of 5 \$50 (AUD) gift vouchers (if you are not participating for course credit). You will also be contributing to the scientific community's understanding of pornography use.

The study poses minimal risk to you, although it is possible that you may find some questions slightly embarrassing or confronting. If you feel uncomfortable with any of the questions asked you are able to skip these items or exit from the survey entirely. You can stop taking part in the study at any time without explanation. **Due to the personal nature of some questions it is suggested that you complete the survey in a private place.**

Your responses will be strictly confidential and anonymous. If you wish to go into the draw to win a gift voucher you will be asked to provide your email address. To maintain anonymity your email address will not be linked to your responses. Furthermore, your contact information will remain confidential. However, this means that once you have submitted the survey you will not be able to withdraw your responses. You should also be aware that the study is not being run from a secure https server (the kind used to handle credit card transactions), so there is a small possibility that responses could be viewed by unauthorised third parties.

The data from the study will be used in research publications. You will not be identified in any way in these publications.

**If you are a James Cook Uni student after research participation credits please access this survey through [SONA](#)**

As stated above, this study poses minimal risk to participants. However, if you are distressed by any of the questions in the study there are services available to help. JCU students can contact the [JCU Student Counselling Service](#) for a confidential appointment with a counsellor. Australian non-JCU students can contact [Lifeline](#) on 13 11 14. If you are outside Australia can use this [link](#) to find online/telephone counselling services operating in your home country.

If you have any questions about the study, please contact Daniel Miller and/or Dr Peter Raggatt.

Principal Investigator:

Daniel Miller

Department of Psychology

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Email: [daniel.miller1@my.jcu.edu.au](mailto:daniel.miller1@my.jcu.edu.au)

Supervisor:

Dr Peter Raggatt

Department of Psychology

James Cook University

Email: [peter.raggatt@jcu.edu.au](mailto:peter.raggatt@jcu.edu.au)

This study has been approved by the Human Research Ethics Committee, JCU (Ethics Approval Number H5850)

If you have any concerns regarding the ethical conduct of the study, please contact:

Human Ethics, Research Office

James Cook University, Townsville, Qld, 4811

Phone: (07) 4781 5011

Email: [ethics@jcu.edu.au](mailto:ethics@jcu.edu.au)

Survey 1, Informed Consent:

- The aim of this research is to gather information on pornography consumption, attitudes toward pornography and sex, and sexual behaviour among men.
- Your participation will involve answering a questionnaire on the topic of pornography and sex and should take about 30-40 minutes to complete.
- You must be **MALE** and **AT LEAST 18** to participate in the study.
- Taking part in this study is voluntary. You can stop taking part without explanation at any time before pressing the final submit button.
- Any information you give will be kept strictly confidential. You will not be identified in any research publications produced as part of this study.

**Have you read the above points and consent to participate in the study?**

- ☐ Yes  
☐ No

**What is your gender?**

- ☐ Male  
☐ Female

**Are you at least 18 years old?**

- ☐ Yes  
☐ No



## Survey 2, Study Information:

**Men's Relationship and Sexual Satisfaction, and Sexual Behaviour**

You are invited to take part in a research project examining men's relationship and sexual satisfaction and how these relate to certain sexual behaviours. The study is being conducted by Daniel Miller and will contribute to his PhD in psychology at James Cook University.

You must be **MALE, AT LEAST 18** and **CURRENTLY IN A RELATIONSHIP** to participate (this includes those who are currently living with their partner, as well as those who are in a relationship but not currently living with their partner). If you agree to participate in the study you will be invited to complete a short survey. The survey will ask about your satisfaction with your relationship, as well as various sexual behaviours (e.g., masturbation, pornography use, sexual preferences).

Completing the survey should take less than 10 minutes.

The study poses minimal risks to participants, although it is possible that some participants may find some of the questions slightly embarrassing. Accordingly, it is suggested that you complete the study in a private place. If you feel uncomfortable you are able to skip items or exit from the study entirely. You can stop taking part in the study at any time without explanation.

Your response will be strictly anonymous. The data from the study will be used in research publications (e.g., the principal investigator's doctoral thesis, journal articles). You will not be personally identified in any way in these publications.

This study has been approved by the Human Research Ethics Committee, JCU (Ethics Approval Number H7429).

If you have any questions about the study, please contact Daniel Miller or Dr Kerry McBain.

**Principal Investigator:**

Daniel Miller  
Department of Psychology  
James Cook University  
Email: daniel.miller1@my.jcu.edu.au

**Supervisor:**

Dr Kerry McBain  
Department of Psychology  
James Cook University  
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Email: headpsychology@jcu.edu.au

***If you have any concerns regarding the ethical conduct of the study, please contact:***  
***Human Ethics, Research Office***  
***James Cook University, Townsville, Qld, 4811***  
***Phone: (07) 4781 5011 (ethics@jcu.edu.au)***

### Survey 2, Informed Consent:

I understand the aim of this study is to investigate men's relationship and sexual satisfaction and how these relate to certain sexual behaviours. I consent to participate in this project, the details of which have been explained to me.

I understand that my participation will involve completing a survey and I agree that the researcher may use the results as described on the information page.

I acknowledge that:

- taking part in this study is voluntary and I am aware that I can stop taking part in it at any time without explanation;
- that any information I give will be anonymous and that no names will be used to identify me with this study.

**I have read the above points and I consent to participate in the study**

☐ I consent to participate

☐ I do not consent to participate

**Which gender do you identify as?**

☐ Male

☐ Female

☐ Other

**What is your age?**

\_\_\_\_\_

**Which best describes your relationship status?**

☐ Currently in a relationship, living with partner

☐ Currently in a relationship, not living with partner

☐ Not currently in a relationship

## Experiment, Study Information:

### Media, Social Judgements and Pornography Use

You are invited to take part in a research project looking at the influence of various media on social judgements and pornography use. The study is being conducted by Daniel Miller and will contribute to a PhD in psychology at James Cook University.

You must be **MALE** and **AT LEAST 18** to participate. The study is open to both users and non-users of pornography. If you agree to participate in the study you will be invited to watch a series of short videos (two 10-minute videos), respond to questions about two written scenarios and then complete a short questionnaire. Some of these videos are pornographic (all pornographic videos depict heterosexual intercourse). Videos will be assigned randomly. **If you do not wish to see pornographic material you should not participate in this study.** In total, participation should take about 40-45 minutes. The study also has an optional follow-up component (which would take a further 15 minutes in 2 week's time). At the end of the study you will be asked whether you would like to participate in the follow-up.

For your participation you can enter the draw to win 1 of 5 \$50 (AUD) gift vouchers (if you are not participating for course credit).

The study poses minimal risks to participants, although it is possible that you may find the videos or some of the questions slightly embarrassing or confronting. If you feel uncomfortable you are able to skip items or exit from the study entirely. You can stop taking part in the study at any time without explanation. **It is strongly suggested that you complete the study in a private place.** James Cook University students should not access the study from a JCU computer.

Your responses will be strictly confidential and anonymous. If you wish to go into the draw to win a gift voucher or participate in the follow-up study you will be asked to provide your email address. To maintain anonymity your email address will not be linked to your responses. Furthermore, your contact information will remain confidential. However, this means that once you have submitted the study you will not be able to withdraw your responses. You should also be aware that the study is not being run from a secure https server (the kind typically used to handle credit card transactions), so there is a small possibility that responses could be viewed by unauthorised third parties.

The data from the study will be used in research publications. You will not be personally identified in any way in these publications.

**If you are a James Cook University student after research participation credits please access this survey through [SONA](#).**

As stated above, this study poses minimal risk to participants. However, if you are distressed by the study there are services available to help. JCU students can contact the [JCU Student Counselling Service](#) for a confidential appointment with a counsellor on +61 7 4781 4711 (Townsville) or +61 7 4232 1150 (Cairns). Australian non-JCU students can contact [Lifeline](#) on 13 11 14. Those outside Australia can use the following [link](#) to find online/telephone counselling services operating in your home country.

If you have any questions about the study, please contact Daniel Miller and/or Dr Peter Raggatt.

**Principal Investigator:**

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This study has been approved by the Human Research Ethics Committee, JCU (Ethics Approval Number H6438).

If you have any concerns regarding the ethical conduct of the study, please contact:  
Human Ethics, Research Office  
James Cook University, Townsville, Qld, 4811  
Phone: (07) 4781 5011  
Email: ethics@jcu.edu.au

## Experiment, Informed Consent:

Please read the following before consenting to participate in this study:

- Participation in this project will involve watching a series of videos (which may be pornographic), reading and responding to two written vignettes, completing a questionnaire on the topic of pornography and relationships and completing a follow-up questionnaire in two week's time (if you nominate to participate in the follow-up). Participation in the initial study should take about 40-45 minutes.
- You must be **MALE** and **AT LEAST 18** to participate in the study.
- Taking part in this study is voluntary. You can stop taking part without explanation at any time before pressing the final *submit* button.
- Any information you give will be kept strictly confidential. You will not be personally identified in any research publications produced as part of this study.
- James Cook University students should not access this study from a university computer.

**Note: We recommend that you complete this study in a private place.**

**I have read the above points and consent to participate in this study:**

- ☐ Yes  
☐ No

**What is your gender?**

- ☐ Male  
☐ Female

**Are you at least 18 years old?**

- ☐ Yes  
☐ No

**I confirm that I will NOT be accessing this study from a James Cook University computer (only applicable to James Cook University students)**

- ☐ Agree  
☐ Not applicable - I am not a James Cook University student

## Appendix D

## Documentation of Ethical Approval to Conduct Studies

Survey 1:

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Survey 2:

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Experiment:

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has been removed



## Appendix E

## The Short Form Pornography Consumption Effects Scale

---

To what extent do you believe your consumption of pornography:

- |     |           |   |
|-----|-----------|---|
| 1.  | SL (P)    | Overall, has improved your sex life?                          |
| 2.  | LG (N)    | Has made your life more problematic?                          |
| 3.  | PATOG (P) | Has made you more respectful towards the opposite gender?     |
| 4.  | SL (N)    | Overall, has made your sex life worse?                        |
| 5.  | ATS (N)   | Has had a negative influence on your attitudes toward sex?    |
| 6.  | SK (P)    | Has improved your knowledge of oral sex?                      |
| 7.  | LG (P)    | Has improved your quality of life?                            |
| 8.  | ATS (P)   | Has had a positive influence on your attitudes toward sex?    |
| 9.  | SL (P)    | Has added something positive to your sex life?                |
| 10. | PATOG (N) | Has led you to view the opposite gender more stereotypically? |
| 11. | ATS (N)   | Has adversely influenced your opinions of sex?                |
| 12. | SK (P)    | Has improved your knowledge of sex?                           |
| 13. | ATS (P)   | Has positively influenced your opinions of sex?               |
| 14. | SL (N)    | Has added something negative to your sex life?                |
- 

*Note.* SL = sex life; LG = life in general; ATS = attitudes toward sex; PATOG = perception of and attitudes toward the opposite gender; SK = sexual knowledge. (P) indicates that the item relates to the positive effect dimension. (N) indicates that the item relates to the negative effect dimension.

Scale construction is outlined in Miller, Kidd, and Hald (2019). All items are on a 7-point scale: 1 = *not at all*; 2 = *to a very small extent*; 3 = *to a small extent*; 4 = *to a moderate extent*; 5 = *to a large extent*; 6 = *to a very large extent*; 7 = *to an extremely large extent*.

Effect dimension totals and subscale totals are calculated by averaging the items contributing to the dimension or subscale.

## Appendix F

### Experiment Vignettes in Full

The following appendix provides the experimental vignettes in full. Screenshots are used to better replicate how information was presented to participants.

#### Taxi Vignette

##### Part 1:

Media, Social Judgements and Pornography Use

Part 2: Scenarios - Christy and Bill

*In this section you will be presented with two written scenarios and then asked a series of questions. We ask that you endeavour to answer honestly. There are no right or wrong answers. We simply want to know your opinions. You can elect to not answer certain questions if you wish.*

*Note: A response will not be recorded unless you move the slider. If you wish to give the original slider value please move the slider away and then back to this position.*

Christy is young, attractive and single. She is leaving a nightclub after a night out dancing with her friends. She has had a few drinks—she is tipsy but not drunk. Outside the club she hails a taxi. The taxi driver, Bill, is a little older than Christy. He has a medium build and is quite handsome. Christy asks how much it will cost to get home. Bill tells her. She says she can't afford to go the whole way but asks if Bill can take her as far as he can for \$40. Bill agrees.

On the drive Christy and Bill are talking and flirting a little. Bill says that he picked up a group of girls at the same club earlier in the week and that they flashed their breasts to get a discount on the ride. Christy laughs. Bill tells Christy that if she flashes him he will drive her all the way home for the \$40.

*Do you think Christy would agree to flash Bill? Indicate the likelihood of Christy agreeing to this using the slider.*

Not at all likely Very likely

*Do you think that the average, single girl around Christy's age would agree? Indicate the likelihood of an average, single girl agreeing to this using the slider.*

Not at all likely Very likely

[Back](#) [Next](#)

42%

##### Part 2:

Media, Social Judgements and Pornography Use

Christy agrees. She flashes Bill while they are stopped at a red light. Bill tells Christy that she is hot. Christy seems flattered by this. He then tells her that he knows a quiet park on the way where they can stop to make out if she wants.

*Do you think Christy would agree to make out? Indicate the likelihood of Christy agreeing to this using the slider.*

Not at all likely Very likely

*Do you think that the average, single girl around Christy's age would agree? Indicate the likelihood of an average, single girl agreeing to this using the slider.*

Not at all likely Very likely

[Back](#) [Next](#)

46%

## Part 3:

Media, Social Judgements and Pornography Use

Christy says she would like to fool around. They stop and are making out for about 5 minutes before Bill unzips his fly and pulls out his penis. He asks Christy to give him a blowjob.

---

*Do you think Christy would agree to give Bill a blowjob? Indicate the likelihood of Christy agreeing to this using the slider.*

Not at all likelyVery likely

---

*Do you think that the average, single girl around Christy's age would agree? Indicate the likelihood of an average, single girl agreeing to this using the slider.*

Not at all likelyVery likely

---

Back
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## Part 4:

Media, Social Judgements and Pornography Use

Christy agrees. She starts performing oral sex on Bill. Bill slides his hands up Christy's dress. He says that he is so turned on and that they should have sex right there in the taxi. It is clear that Bill doesn't intend to use a condom.

---

*Do you think Christy would agree to have sex? Indicate the likelihood of Christy agreeing to this using the slider.*

Not at all likelyVery likely

---

*Do you think that the average, single girl around Christy's age would agree? Indicate the likelihood of an average, single girl agreeing to this using the slider.*

Not at all likelyVery likely

---

Back
Next

## Part 5:

Media, Social Judgements and Pornography Use

Christy says she is also turned on and that they should have sex. They start going at it. Bill slaps Christy on the ass.

---

*Do you think Christy would find being spanked like this arousing/enjoyable? Indicate how arousing you think Christy would find this using the slider.*

Not at all arousing/  
enjoyableVery arousing/ enjoyable

---

*Do you think that the average, single girl around Christy's age would find being spanked like this arousing/enjoyable? Indicate how arousing you think an average, single girl would find this using the slider.*

Not at all arousing/  
enjoyableVery arousing/ enjoyable

---

Back
Next

## Part 6:

## Media, Social Judgements and Pornography Use

**Bill starts to talk dirty to Christy. He calls her things like "dirty girl" and "slut".**

*Do you think Christy would find Bill's dirty talking arousing/enjoyable? Indicate how arousing you think Christy would find this using the slider.*

Not at all arousing/enjoyable Very arousing/enjoyable

*Do you think that the average, single girl around Christy's age would find Bill's dirty talking arousing/enjoyable? Indicate how arousing you think an average, single girl would find this using the slider.*

Not at all arousing/enjoyable Very arousing/enjoyable

Back Next

62%

## Part 7:

## Media, Social Judgements and Pornography Use

**Eventually Bill says he is "close to finishing". He pulls out and ejaculates onto Christy's stomach and breasts.**

*Do you think Christy would find this arousing/enjoyable? Indicate how arousing you think Christy would find this using the slider.*

Not at all arousing/enjoyable Very arousing/enjoyable

*Do you think that the average, single girl around Christy's age would find this arousing/enjoyable? Indicate how arousing you think an average, single girl would find this using the slider.*

Not at all arousing/enjoyable Very arousing/enjoyable

Back Next

65%

## Workplace Vignette

### Part 1:

Media, Social Judgements and Pornography Use

Part 2: Scenarios - Tasha and Steve


*In this section you will be presented with two written scenarios and then asked a series of questions. We ask that you endeavour to answer honestly. There are no right or wrong answers. We simply want to know your opinions. You can elect to not answer certain questions if you wish.*

*Note: A response will not be recorded unless you move the slider. If you wish to give the original slider value please move the slider away and then back to this position.*


**Tasha—an attractive, single, young woman—has just started a new job doing clerical work in a legal firm. One night her manager, Steve, asks her to work late. Steve is about 10 years older than Tasha and quite muscular. Once the other workers leave Steve calls Tasha into his office to go over some files. They start talking about work. Tasha mentions that she doesn't like having to work Saturday shifts. As the conversation continues Steve starts to act flirtatiously towards Tasha, who reciprocates.**

**While they are both looking over a file Steve puts his arm on the back of Tasha's chair. Tasha doesn't move away. In fact, she leans in a little. Steve grabs Tasha and starts to kiss her.**

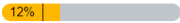
*Do you think Tasha would kiss Steve back? Indicate the likelihood of Tasha kissing Steve back using the slider.*

Not at all likely

Very likely

*Do you think that the average, single girl around Tasha's age would kiss Steve back? Indicate the likelihood of the average, single girl kissing Steve back using the slider.*

Not at all likely

Very likely

Back
Next

12%


### Part 2:

Media, Social Judgements and Pornography Use


**Tasha kisses Steve back. They start to make-out. Steve tells Tasha that being his friend can have its benefits. Tasha asks what he means. Steve explains that if she does him a favour he will make sure that she doesn't have to work on Saturdays. He grabs Tasha's hand, places it on his groin and asks for a handjob.**

*Do you think Tasha would agree to give Steve a handjob? Indicate the likelihood of Tasha agreeing to this using the slider.*

Not at all likely

Very likely

*Do you think that the average, single girl around Tasha's age would agree to give Steve a handjob? Indicate the likelihood of the average, single girl agreeing to this using the slider.*

Not at all likely

Very likely

Back
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15%


## Part 3:

Media, Social Judgements and Pornography Use

Tasha agrees. She says she finds Steve very attractive. After a few minutes Steve asks Tasha to “blow him”.

Do you think Tasha would agree to give Steve a blowjob? Indicate the likelihood of Tasha agreeing to this using the slider.

Not at all likely Very likely

Do you think that the average, single girl around Tasha's age would agree to give Steve a blowjob? Indicate the likelihood of the average, single girl agreeing to this using the slider.

Not at all likely Very likely

[Back](#) [Next](#)

19%

## Part 4:

Media, Social Judgements and Pornography Use

Tasha says that a blowjob sounds fun. She starts to perform oral sex on Steve. Steve grabs her ponytail and pulls it a little.

Do you think Tasha would find this hair pulling arousing/enjoyable? Indicate how arousing you think Tasha would find this using the slider.

Not at all arousing/enjoyable Very arousing/enjoyable

Do you think that the average, single girl around Tasha's age would find this hair pulling arousing/enjoyable? Indicate how arousing you think an average, single girl would find this using the slider.

Not at all arousing/enjoyable Very arousing/enjoyable

[Back](#) [Next](#)

23%

## Part 5:

Media, Social Judgements and Pornography Use

Steve says that they should “fuck” right here on his desk. It is clear that Steve isn't planning on putting a condom on.

Do you think Tasha would agree to have sex with Steve? Indicate the likelihood of Tasha agreeing to this using the slider.

Not at all likely Very likely

Do you think that the average, single girl around Tasha's age would agree to have sex with Steve? Indicate the likelihood of the average, single girl agreeing to this using the slider.

Not at all likely Very likely

[Back](#) [Next](#)

27%

## Part 6:

## Media, Social Judgements and Pornography Use

Tasha agrees and starts to undress. They start having sex. Steve says that he “likes it rough”. He grabs Tasha by the hips hard enough to bruise. Then he starts to thrust rapidly.

Do you think Tasha would find this arousing/enjoyable? Indicate how arousing you think Tasha would find this using the slider.

Not at all arousing/enjoyable Very arousing/enjoyable

Do you think that the average, single girl around Tasha's age would find this arousing/enjoyable? Indicate how arousing you think an average, single girl would find this using the slider.

Not at all arousing/enjoyable Very arousing/enjoyable

Back Next

31%

## Part 7:

## Media, Social Judgements and Pornography Use

Steve says that he wants to “finish” on Tasha. He pulls out and he ejaculates onto Tasha's face.

Do you think Tasha would find this arousing/enjoyable? Indicate how arousing you think Tasha would find this using the slider.

Not at all arousing/enjoyable Very arousing/enjoyable

Do you think that the average, single girl around Tasha's age would find this arousing/enjoyable? Indicate how arousing you think an average, single girl would find this using the slider.

Not at all arousing/enjoyable Very arousing/enjoyable

Back Next

35%

## Appendix G

### Experiment Follow-Up

As indicated in the information sheet above (see Appendix C), experimental study participants were invited to take part in a follow-up study. In order to ensure participant anonymity, participants who agreed to participate in the follow-up were asked to enter their date of birth (this was used to link responses from Time 1 to Time 2). Participants were then automatically redirected to a new survey where they could enter their email address (ensuring that email addresses could not be linked to participants' responses). After two weeks, these participants were emailed a link to the follow-up study. In the follow-up study participants were presented with the same vignettes and vignette questions (but not the experimental exposure videos). Participants were also asked whether they had watched taxi- or workplace-themed pornography since completing the study.

The follow-up component was developed because it was reasoned that if an experimental effect was observed it would be informative to see if the effect remained after an extended period. Under half ( $n = 170$ ) of participants completed the follow-up study. As outlined in Chapter 11, analysis of the experimental effect was limited to those who had watched the majority of the stimulus materials. This process reduced the number of useable follow-up responses to 59. This would result in unacceptably low power on any tests comparing the experimental and control groups at Time 2. Given that an experimental effect was not detected at Time 1, and the low number of useable follow-up responses, I chose not to analyse the follow-up data.