



Pornography Use in Adult Mixed-Sex Romantic Relationships: Context and Correlates

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Abstract

Purpose of Review Pornography use is a common sexual activity for men and women engaged in a romantic relationship. The objective of this literature review was to highlight the current state of research on the associations between pornography use and relational and sexual well-being in mixed-sex couples, with a particular focus on the context of use.

Recent Findings Overall, findings are mixed, and studies are plagued by methodological shortcomings precluding causal assertions. Nevertheless, research indicates that men's pornography use is negatively associated with relational well-being and sexual satisfaction, whereas women's use is unrelated to relational indicators and unrelated to, or positively associated with, sexual satisfaction. The context in which pornography is used (e.g., alone or with the partner) moderates these associations.

Summary This review suggests that pornography use may be positively related, negatively related, or unrelated to couples' well-being. The sex of the user and the context of use may in part explain this variability in correlates of pornography use.

Keywords Pornography · Romantic relationship · Context of use · Sexual well-being · Relationship well-being

Introduction

With the advent of the Internet and wireless devices, pornography is now easily accessible and offers a diversity of sexual content [1]. Its exponential growth in popularity has made it a mainstream sexual activity, one that may redefine couple sexuality [2]. This has led many to question what impact pornography might have on couples' relational and sexual well-being. The popular media blames pornography for a host of relationship problems [3]. However, even if most studies examining pornography use have adopted a "harm focused" approach by assuming and searching for negative effects, a significant body of research does not support the media's slanted portrayal. In fact, this negative view of pornography is slowly brought into perspective by studies reporting positive associations between pornography use and some indicators of

couples functioning, and recent studies not showing the famous negative correlates stemming from past experimental research [4, 5]. Therefore, a lively debate is still ongoing as to whether it is good or bad for individuals engaged in a relationship to use pornography, producing an increasing number of often contradictory findings. Even if pornography use remains a polarized subject in the public opinion and in the research community, dualistic views are progressively being replaced by more comprehensive and integrated approaches, addressing contextual factors that may explain when pornography is associated with positive or negative correlates in romantic relationships.

The objectives of this literature review are to (1) highlight the current state of research on the relational and sexual correlates of pornography use in mixed-sex couples and (2) offer an insight into how the context of pornography use may be differentially associated with relational and sexual well-being in romantic relationships. We were particularly interested in studies examining the correlates of frequency of use in community couples or in individuals currently in a romantic relationship, rather than those examining the well-being of partners of compulsive users or the correlates of problematic or compulsive pornography use. Moreover, an emphasis was placed on research that was published in peer-reviewed

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journals in the past 5 years. Before reviewing the factors associated with pornography use, it seems important to define what represents pornography, examine the estimated prevalence of its use, and describe the context of use in romantic relationships. Current research on the associations between pornography use and relational and sexual well-being in romantic relationships will then be reviewed, followed by a description of the well-being of the user's romantic partner and longitudinal implications of pornography use. Lastly, we will review how the context of pornography use may be differentially associated with relational and sexual well-being.

Definition of Pornography and Prevalence of Use in Romantic Relationships

Pornography is a challenging concept to define and what is considered pornography varies between studies [6]. The lack of consensus regarding its definition, and even how it should be labeled, makes prevalence estimates vary greatly and comparison of results across studies difficult. The term pornography has received bad press, with some researchers using it only for degrading, offensive, or violent sexual materials [7, 8]. Probably to avoid these negative connotations, others have adopted alternative terminologies, often used interchangeably. Table 1 summarizes the different terms that include or are related to pornography and their most common definitions, although the central components of these definitions are still

debated and some features systematically vary across studies [22]. For example, some definitions are more restrictive as they include only explicit sexual acts involving the genitals [23], whereas others integrate individuals posing or acting naked [5]. Some studies distinguish coercive or violent from non-degrading pornography [7, 11, 14]. The medium via which the sexual content is used also differs, with some definitions including written materials such as erotic novels [9, 24] and others focusing only on visual materials [25], or broadly including all sexual activities (e.g., strip clubs, sex chat) [18, 26]. The function of materials is sometimes defined, for example, materials intended to sexually arouse the viewer or used for sexual gratification [12, 27]. Such discrepancies in terms and operationalization have only fragmented the field further [22]. Thus, this review included studies examining the correlates of all sexual materials used for sexual gratification, regardless of the term or the definition used, excluding other sex-related interactive activities such as strip clubs, sex chat, or webcam sex.

While single people tend to watch more pornography, it is found to be a common sexual activity for individuals engaged in a romantic relationship [28–30]. A reanalysis of four large representative samples of American adults, including both individuals who are single and those involved in a romantic relationship, indicated that, over a given year, 69% of men and 40% of women intentionally viewed pornography [31]. Specifically, in samples of individuals currently in a romantic relationship, estimates of pornography use ranged between 36

Table 1 Terms and definitions of pornography-related concepts

Terms	Definitions
Pornography	Any materials of sexual nature (i.e., pictures, videos, written, or audio material) used or intended to sexually arouse the viewer. It includes pictures or videos of nude individuals and all materials that explicitly describe people having sex or direct physical stimulation of genitals such as masturbation [5, 9].
Visual sexual stimuli (VSS)	Any visual materials, either pictures or video, of a sexual nature including nudity or explicit sexual acts [10].
Sexually explicit material (SEM)	Any materials (i.e., video, image, audio, and text) depicting people having sex or displaying direct physical stimulation of genitals such as masturbation. Materials containing only nudity, men or women posing nude, should not be included. Some authors precise that it should be two adults consensually engaging in pleasurable and non-violent sexual interactions [11–13].
Sexual media	All contents of sexual nature, that are intended to bring an erotic sexual experience. It includes explicit and non-explicit sexual depictions and not only the ones that are intended to arouse the viewer. For example, it would include suggestive contents depicted in the media (e.g., sexually provocative image in advertisements) [14, 15].
Erotica	All materials depicting mutually pleasurable sexual expression between people, thus non-coercive and non-degrading sexuality. Particularly used for sexually arousing literature such as adult romance novels or for images of nude men and women [4, 7, 16, 17].
Online sexual activities (OSAs)	Use of the Internet (via text, audio, video, and graphic files) for any activity that involves sexuality such as seeking information about sexual concerns, purchasing sexual materials, sexual chats, sex webcam, the search for sexual partners, and downloading or sharing or viewing image/videos online [18, 19].
Cybersex	All sex-related activities using computer, Internet, and sometimes, virtual reality equipment [20, 21].

and 92% for men and between 6 and 83% for women [5, 32, 33]. For instance, in a large sample of 1755 mixed-sex couples, 71% of men and 34% of women reported pornography use in the last year [24] whereas in a sample of 430 individuals currently in a relationship, 92% of men and 83% of women reported using pornography since the beginning of their relationship [5]. A higher level of commitment between partners (i.e., dating to cohabiting/engaged to married) is associated with a lower proportion of men and women using pornography, and a lower frequency of use [33, 34, 35].

Context of Pornography Use in Romantic Relationships

As individuals engaged in a romantic relationship use pornography, we need to understand the context of their use. Across all studies, a persistent trend emerges: compared to women, men are more likely to use pornography and to use it more frequently [11, 15, 36]. On average, for those using pornography, men report a weekly usage, whereas women report using it monthly or less [33, 34]. In mixed-sex relationships, this gender gap creates a discrepancy in partners' use, with only 35% of couples reporting equal pornography use [24, 32, 37]. Attitudes concerning pornography use in romantic relationships also vary widely [24]. Men are significantly more likely to accept their partner's pornography use (71%) as compared to women (46%) [38]. Around one third of women (31 to 36%) and less than one quarter (7 to 28%) of men feel that pornography is a form of infidelity [19, 34]. These gender differences may lead to secrecy surrounding one partner's use [32, 34]. Indeed, 37% of women underestimate the frequency of their male partner's use, whereas 16% of men do so [34]. Finally, women are more likely than men to use pornography only with their partner (11 to 15% vs. 3 to 5%) [11, 34]. Even if it remains a solitary sexual activity in most couples, about half of individuals (45 to 70%) who use pornography while being in a relationship also use it with their partner [5, 36]. As consumption patterns appear quite different between men and women, they may possibly be differentially associated with relational and sexual well-being in romantic relationships.

Correlates of Pornography Use in Romantic Relationships

Methodological Issues

As presented in the following sections, findings regarding the link between pornography use and both relational and sexual well-being are mixed. First, studies suggesting significant associations sometimes show positive, and other times, negative links between pornography use and romantic relationship

well-being. Second, these studies generally report small effect sizes. These inconsistencies between results may be partly explained by the quality of the methodologies used. To date, most studies have espoused a correlational design with non-probability samples, hence precluding the establishment of causal associations. There are also qualitative or mixed-method studies that asked participants about the effect of their own or their partner's pornography use on their couple's well-being [5, 19]. These studies are based on self-perceived correlates without comparison to nonusers or low-frequency users. Thus, even if cross-sectional research has generally assumed a direction of effect suggesting that pornography use theoretically predicts relational and sexual well-being, we can only describe associations. Regarding directionality, correlational designs do not permit to conclude whether individuals in unhappy relationships use more pornography, whether pornography contributes to dissatisfaction, or both. Pornography use may also be a way to cope with sexual and relationship difficulties or dissatisfaction. However, this assumption cannot yet be confirmed or infirmed in light of the available data.

Even the handful of longitudinal cross-lagged studies—which bring stronger empirical evidence on the directionality of the associations between pornography use and romantic relationship well-being—do not have sufficiently rigorous designs to assume causality. Indeed, pornography use could simply represent a proxy for other personal or relational difficulties for which pornography is used to avoid associated negative emotions. For example, dealing with negative emotions through the use of pornography might be negatively associated with couple well-being. Here, it might not be pornography per se that would be associated with negative correlates, but rather deficiencies in emotion regulation. Significant associations between pornography use and couple well-being could also be confounded with the effect of, for example, masturbation, higher negative affect, or higher sexual drive. The handful of experimental studies exposing individuals to pornography in an artificial laboratory setting and dictating which type of pornography they are viewing constitute a methodological breakthrough, but findings may not represent pornography use in partners' natural setting and the effect on the relationship dynamic in their daily lives, when pornography use is a deliberate choice, rather than an experimental task.

Another common methodological shortcoming pertains to how pornography use was measured. Most studies reviewed either examined the occurrence (i.e., having used pornography or not) or the frequency of use with a variety of scales and time frames (e.g., in the last month, year, or even lifetime). The different associations with having once used pornography versus using pornography regularly or every day may explain some of the variability between studies. The interpretation of the following

results should take into account these methodological issues.

Pornography Use and Relationship Well-Being

Looking more closely at findings on the link between pornography use and relationship adjustment, some studies found no evidence of an association between pornography and relationship well-being [4•, 12, 39]. In three experimental studies randomly assigning participants to view different images, Balzarini et al. [4•] reported that exposure to attractive nude images had no significant effects on love for the partner in both men and women compared to images of non-nude individuals or abstract art. However, because a single exposure to nude images is hardly comparable to repetitive pornography viewing outside the laboratory, these results are unlikely to reflect the naturalistic context of pornography use. In a sample of 2284 Croatian couples, the significant but small negative correlation between frequency of pornography use and relationship satisfaction did not hold after adjusting for a range of covariates including sociodemographic variables and psychosexual and relationship characteristics [12]. These studies suggest that when controlling for other factors, either statistically or by controlling the exposure environment, pornography use is not associated with relationship well-being.

On the other hand, a negative association between pornography use and various aspects of romantic relationships has been reported in other studies [11]. Lambert et al. [35] conducted a series of five studies using small samples of young adult college students and espousing various methodological approaches. These included cross-sectional data, observational ratings of commitment, and an experimental study randomly assigning 20 pornography users currently involved in a mixed-sex romantic relationship to continue ($n = 10$) versus abstain from viewing pornography for 3 weeks ($n = 10$). They found that frequency of pornography use was associated with lower relationship commitment, greater attention to relationship alternatives, and higher levels of infidelity. Using cross-sectional data, Willoughby et al. [24] found pornography use to be associated with less positive communication between partners, higher levels of relational aggression, and lower relationship stability. No studies have yet found positive associations between pornography use and relational well-being.

When the link between pornography and relational well-being was examined separately by sex, divergent patterns of results were generally observed in cross-sectional studies. Among 373 young heterosexual men currently in a romantic relationship, Szymanski and Stewart-Richardson [40] found that frequency of pornography use was related to lower relationship satisfaction. Similarly, Muusses et al. [41••] as well as Bridges and Morokoff [33] showed that a higher frequency of men's pornography use was negatively associated with

relationship satisfaction, but not women's use. Finally, in a sample of 20,000 ever-married adults, Doran and Price [42] observed that men, but not women, who had watched an X-rated movie in the past year were more likely to be divorced and less likely to report a very happy marriage. However, both women and men were more likely to have engaged in an extramarital affair.

These mixed findings make it difficult to conclude whether pornography use is negatively associated or unrelated to various aspects of romantic life. The small effect sizes observed might explain the discrepancy across studies and underline that nonsignificant findings mostly come from studies controlling for potential proxy variables, underscoring the importance to do so. In addition, the potential negative associations between pornography use and relational well-being are more generally observed in men, which might be attributed to their pattern of use. Given most of these studies were correlational, the reported gender-specific associations may also represent an avoidant coping method more frequent in men, in which negative emotions emerging from couple difficulties are regulated, in part, through pornography use [43, 44].

Pornography Use and Sexual Well-Being in Romantic Relationships

Most research examining the association between pornography use and sexuality in couples focused on sexual satisfaction, using mostly cross-sectional data stemming from self-report questionnaires, with only a few studies examining other components of sexual well-being. A significant number of these studies found that frequency of men's pornography use was associated with lower sexual satisfaction [15, 33, 37, 39, 40, 41••, 45]. In contrast, results for women's pornography use appear to be more discrepant. In a sample of committed couples, Poulsen et al. [39] found that women's frequency of pornography use was positively associated with sexual satisfaction. Still, most cross-sectional studies reported nonsignificant associations between women's pornography use and sexual satisfaction [15, 33, 37], and the only prospective study examining sexual satisfaction reported nonsignificant associations in both men and women [41••].

Apart from the association between pornography use and sexual satisfaction, qualitative and quantitative research showed that pornography use in a romantic relationship is also linked to positive sexuality correlates [5, 19]. Staley and Prause's [46] experimental study indicated that individuals who viewed an erotic film in a controlled laboratory environment reported greater desire to be close to their partner compared to those viewing a neutral or a non-erotic exciting film. In three different experimental studies, Balzarini et al. [4•] found no negative effect of exposure to nude images on ratings of partner's attractiveness in both men and women compared to images of non-nude individuals or abstract art and, in

one of their studies, women even rated their partners as more attractive after viewing nude centerfolds. Despite some positive associations with sexual well-being found in experimental studies, which are limited in terms of their external validity, some users do perceive that their pornography viewing is negatively associated with sexual well-being in qualitative studies, such as being less aroused by real sex, having sex less often, or being more critical of the partner's body [19].

The gender-specific association between pornography use and sexual satisfaction in couples has not yet been generalized to other indicators of sexual well-being. Even if two empirical studies reported positive associations between pornography use and some components of sexual well-being, many indicators have not yet been studied in couples, such as sexual function and sexual distress. However, individuals' pornography use has been associated with sexual dysfunctions in cross-sectional studies using single occasion self-report measures [47, 48]. Given the small number of studies focusing on other components of sexuality than sexual satisfaction, no definitive conclusions can be drawn concerning how pornography may be associated with sexuality in a romantic relationship. Hence, the negative portrayal of pornography depicted by popular media is not fully supported by research published to date.

Pornography Use and Partners' Relational and Sexual Well-Being

Investigation of the negative link between an individual's pornography use and the partner's relational and sexual well-being has been an important area of research, in qualitative examination at first [49–51]. Subsequently, studies using cross-sectional data from samples of college women found associations between frequency of male partner's pornography use and women's lower relationship satisfaction, as well as higher attachment anxiety [52–54]. However, this body of research focused only on women's romantic relationship well-being and is limited by the subjective assessment of their partner's pornography use, which may be influenced by women's attitudes and beliefs about pornography or relationship well-being.

Only a handful of dyadic studies using data from both partners have allowed a more thorough examination of the associations between both partners' pornography use and each other's relationship well-being. In their cross-sectional and prospective analysis, Muusses et al. [41••] found no significant association between wives and husbands' pornography use and their partners' relationship and sexual satisfaction. In a cross-sectional sample of 433 married couples, men and women's pornography use was also unrelated to their partners' sexual satisfaction [37] and, in another cross-sectional study among 200 heterosexual couples, men and women's solitary pornography use was unrelated to their partners' openness in sexual communication [9]. While some studies

showed that one's own higher levels of pornography use was associated with one's partner's lower levels of sexual satisfaction [39], relationship satisfaction [55], and relational closeness [9], these partner associations were either restricted to or stronger for men's pornography use. Interestingly, and in contrast with other studies, Bridges and Morokoff [33] observed that women's frequency of sexual media use was positively related to men's general dyadic satisfaction (a latent variable of relationship and sexual satisfaction), whereas men's use was unrelated to women's general dyadic satisfaction.

Overall, results of studies examining the association between an individual's pornography use and their partner's relational and sexual well-being are inconsistent suggesting either negative, positive, or the absence of an association. Findings from dyadic studies bring some nuances, highlighting that negative associations between pornography use and relationship well-being, when observed, are more likely to be linked to men rather than to women's pornography use, although this was not confirmed prospectively.

Directionality of Associations

Even if the prospective studies examining the associations between pornography use and relational well-being over time do not allow for the establishment of causal conclusions, they may help uncover plausible bidirectional associations. Using nationally representative longitudinal data, Perry [56••] found that pornography use was associated with decreases in relationship satisfaction 6 years later in married men, whereas, in married women, pornography use was associated with increases in relationship satisfaction. In a large representative sample of US adults followed over 8 years, Perry and Schleifer [57•] found that the probability of divorce roughly doubled for married men and women who began to use pornography during the study. Although the longitudinal design of these studies brings stronger empirical evidence on the association between pornography use and relationship satisfaction and stability, the authors did not examine the alternate hypothesis linking relationship well-being to pornography use.

Only two studies fully examined bidirectional associations between pornography use and relationship well-being. In two separate samples of married adults, Wright et al. [25•] found pornography use to predict more positive extramarital sex attitudes 2 years later. However, extramarital sex did not predict subsequent pornography use. Muusses et al. [41••] found marginally significant bidirectional associations between higher levels of pornography use and lower relationship satisfaction in men. These associations were all nonsignificant for sexual satisfaction. Although examinations of the reciprocal links between pornography use and relationship well-being are scarce, current findings stemming from longitudinal data suggest that conclusions about relationship dissatisfaction

being a result of pornography use should be tempered, as relationship problems could also influence pornography consumption.

Context of Pornography Use and Relationship Well-Being

Even if some general trends are observed in the literature on the associations between pornography use, mostly frequency of use, and relational and sexual well-being, the persistent variability in results may be explained by different contexts of pornography use. However, to date, these contexts of use have been examined using cross-sectional designs.

Discrepancy Between Partners' Pornography Use

The discrepancy between partners' use could play a role in the variability of associations found between pornography use and couple well-being. Findings suggested that when both partners used pornography in their current relationship, no significant association with sexual satisfaction emerged, and these couples were even characterized by a more permissive erotic climate [32, 37]. Willoughby et al. [24] reported that a higher discrepancy in the frequency of partners' pornography use was related to lower relationship satisfaction, less positive communication between partners, and higher levels of relational aggression. Kohut et al. [9] showed that a higher discordance between partners' pornography use was related to less openness in sexual communication and lower closeness in the relationship. In contrast, when both partners used pornography at similar levels, their sexual communication was more open and there was no association with their relational closeness [9].

Attitudes Toward Pornography

The results regarding the discrepancy of use between partners may be partially explained by partners' attitudes regarding pornography. Findings regarding the associations between partners' acceptance of pornography use and relationship well-being are mixed. Most studies found that the association between pornography use and relational and sexual well-being did not vary according to, or was not explained by, attitudes toward pornography or acceptance of the partner's use [39, 42, 45, 53]. However, Willoughby et al. [24] found that the negative association between pornography use and couple satisfaction was weakened when acceptance of either partner was high. Similarly, the association between pornography use and positive communication and relational aggression were diminished when women's acceptance was greater. In another study, Maas et al. [55] reported that for men and women who were less accepting of pornography, one's own

frequency of pornography use was associated with one's lower relationship satisfaction. For those who were more accepting of pornography, one's own pornography use had no link with relationship satisfaction for women, and a positive association with relationship satisfaction for men.

Secrecy Surrounding Pornography Use

Research on honesty versus secrecy surrounding pornography use is still lacking, but Resch and Alderson [58] found that in a sample of 240 female university students, women who thought that their male partner was honest regarding his pornography use reported higher levels of relationship satisfaction than women who believed their partner was deceitful.

Solitary and Dyadic Pornography Use

One of the most examined contexts of use concerns the correlates of solitary, or separate, versus dyadic, concurrent, or shared, use. Results generally suggest that solitary use is negatively associated with relational well-being in romantic relationships. Indeed, Maddox et al. [36] found that individuals using pornography solely alone reported higher levels of negative communication, more infidelity, and lower relationship adjustment, commitment, and sexual satisfaction than non-users, as well as lower dedication and sexual satisfaction than individuals who exclusively used pornography with their partner. Minarcik et al. [11] showed that solitary users reported lower relationship satisfaction, intimacy, and commitment compared to non-users, but also lower intimacy and commitment than shared users. Even if some studies reported that using pornography with a partner was not associated with relationship adjustment [46, 58], most quantitative and qualitative studies reported positive associations between shared pornography use and relational and sexual well-being [5, 19, 33]. Kohut et al. [9] found that higher frequencies of shared pornography use were associated with higher openness in sexual communication and higher closeness in the relationship, whereas frequency of solitary use was negatively related to these variables. However, Maddox et al. [36] found that using pornography with the partner was associated with higher infidelity rates compared to not using at all.

Despite some mixed findings, general conclusions can be drawn. The associations between pornography use and relational and sexual well-being are not the same for every couple, as they partly depend of the context of use. In general, pornography is unrelated to relationship well-being or is positively associated with relationship well-being when both partners are evenly using pornography, when acceptance of either partners' pornography use is high, when one's use is known by the partner, and when partners are using pornography together. When there is a high discordance between frequency of partners' use, in particular if one is using it and the other is not,

when one partner is less accepting of pornography use, when it is a hidden use, or when it is only a solitary use, pornography is negatively associated with relationship well-being.

Suggestions for Future Research

Comprehensive models that aim to understand associations between pornography use and relational and sexual well-being in romantic relationships need to include both the complexity of what is considered pornography and the context of pornography use, including the pattern of use and the relational background in which this use occurs. Researchers need to clearly define what they mean by pornography and use measurement tools that capture this complexity [59]. This review also points toward the necessity of continuing to take into consideration many contextual variables, not only frequency of pornography use. Other factors related to pornography use should also be examined in association with the couples' well-being, including the content of pornography and the motivations-driving use. Regarding direction of effects, the associations between pornography and romantic relationships need to be conceptualized in terms of mutual influences. Rigorous research using longitudinal dyadic designs is much needed to examine the bidirectional associations between pornography use and multiple indicators of sexual and relationship well-being, as well as how these indicators are linked to both the individual and the partner's pornography use. Finally, researchers need to bolster their confidence in their associations by ruling out potential alternative explanations such as the role of negative affect, difficulties in emotion regulation, masturbation, or a higher sex drive.

Clinical Implications

Pornography use has become of growing clinical interest as mental health professionals increasingly receive consultation requests from men seeking support regarding their use of pornography. The rising clinical demand has led the research field to lag behind clinical development, with some clinicians sometimes generalizing what they see in their practice to all pornography users. Although the correlates of self-perceived problematic pornography use, or of pornography use in clinical samples, were not the focus of this review, findings from these two related fields are often conflated. This can lead to pathologizing all use of pornography without consideration of actual associations with users' well-being, including in their romantic relationships. Thus, we need to be cautious about claiming that pornography use should be systematically clinically relevant when the individuals or their partners do not self-perceive their use as problematic. Clinicians may want to establish a pattern of open communication about pornography

use and couples' attitudes and feelings about this topic as well as assess how their pattern and context of use may be associated with well-being, including how pornography use may result from, or feed into, reported difficulties.

Conclusions

Even if research on pornography use and romantic relationships is growing rapidly, it is still in its infancy, with most studies using cross-sectional designs and all precluding causal assertions. Findings of this review suggest that pornography use is not universally associated with positive or negative correlates in romantic relationships, but largely depends on the sex of the users, which may be explained by distinctive patterns of use between men and women. In general, research indicates that men's higher frequency of pornography use is negatively associated with relational well-being and sexual dissatisfaction, whereas women's higher frequency of use is unrelated to relational indicators and unrelated to, or positively associated with, sexual satisfaction. The associations with the user's partner's relationship correlates also appear more negative for men using pornography than for women. Studies reviewed here also suggest that the context of pornography use is differentially associated with relational well-being. Thus, it is not pornography itself that seems to be associated with positive or negative indicators or relationship and sexual well-being, but rather, it is how individuals in a romantic relationship use pornography. Four contexts of use appear particularly important: concordance or discrepancy in partners' use, levels of acceptance of pornography from both partners, known versus hidden use, and solitary versus dyadic use. Being open with each other about pornography use and its frequency as well as discussing attitudes toward pornography use together may facilitate the integration of this sexual activity to the couple's repertoire when desired. Research results should be disseminated more widely to clinicians and couples to nuance negative attitudes toward pornography in the public opinion as well as the clinical and scientific community.

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Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflicts of interest.

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References

Papers of particular interest, published recently, have been highlighted as:

- Of importance
- Of major importance

1. Cooper A. Sexuality and the Internet: surfing into the new millennium. *CyberPsychol Behav.* 1998;1:187–93. <https://doi.org/10.1089/cpb.1998.1.187>.
2. Ropelato J. Internet pornography Statistics 2007. <http://www.ministryoftruth.me.uk/wp-content/uploads/2014/03/IFR2013.pdf>. Retrieved on January 17th, 2019.
3. Montgomery-Graham S, Kohut T, Fisher W, Campbell L. How the popular media rushes to judgment about pornography and relationships while research lags behind. *Can J Hum Sex.* 2015;24(3):243–56. <https://doi.org/10.3138/cjhs.243-A4>.
4. • Balzarini RN, Dobson K, Chin K, Campbell L. Does exposure to erotica reduce attraction and love for romantic partners in men? Independent replications of Kenrick, Gutierrez, and Goldberg (1989) study 2. *J Exp Soc Psychol.* 2017;70:191–7. <https://doi.org/10.1016/j.jesp.2016.11.003> **This research includes three experimental studies that examine the associations between being exposed to nude centerfolds, compared to images of abstract art or non-nude photographs, and attractiveness and love for partner.**
5. Kohut T, Fisher WA, Campbell L. Perceived effects of pornography on the couple relationship: initial findings of open-ended, participant-informed, “bottom-up” research. *Arch Sex Behav.* 2016;46:585–602. <https://doi.org/10.1007/s10508-016-0783-6>.
6. Willoughby BJ, Busby DM. In the eye of the beholder: exploring variations in the perceptions of pornography. *J Sex Res.* 2016;53(6):678–88. <https://doi.org/10.1080/00224499.2015.1013601>.
7. Steinem G. Erotica and pornography: a clear and present difference. In: Lederer L, editor. *Take back the night: women on pornography*. New York: William Morrow; 1980. p. 35–9.
8. Johnson WT. The pornography report: epistemology, methodology and ideology. *Duq L Rev.* 1971;10:190–219.
9. Kohut T, Balzarini RN, Fisher WA, Campbell L. Pornography’s associations with open sexual communication and relationship closeness vary as a function of dyadic patterns of pornography use within heterosexual relationships. *J Soc Pers Relat.* 2018;35(4):655–76. <https://doi.org/10.1177/0265407517743096>.
10. Redouté J, Stoléro S, Grégoire M-C, Costes N, Cinotti L, Lavenne F, et al. Brain processing of visual sexual stimuli in human males. *Hum Brain Mapp.* 2000;11:162–77.
11. Minarcik J, Wettenek CT, Short MB. The effects of sexually explicit material use on romantic relationship dynamics. *J Behav Addict.* 2016;5(4):700–7. <https://doi.org/10.1556/2006.5.2016.078>.
12. Veit M, Štulhofer A, Hald GM. Sexually explicit media use and relationship satisfaction: a moderating role of emotional intimacy? *Sex Relation Ther.* 2016;32(1):58–74. <https://doi.org/10.1080/14681994.2016.1193134>.
13. Hald GM. Gender differences in pornography consumption among young heterosexual Danish adults. *Arch Sex Behav.* 2006;35(5):577–85. <https://doi.org/10.1007/s10508-006-9064-0>.
14. Leonhardt ND, Spencer TJ, Butler MH, Theobald AC. An organizational framework for sexual media’s influence on short-term versus long-term sexual quality. *Arch Sex Behav* 2018. <https://doi.org/10.1007/s10508-018-1209-4>.
15. Leonhardt ND, Willoughby BJ. Pornography, provocative sexual media, and their differing associations with multiple aspects of sexual satisfaction. *J Soc Pers Relat.* 2017;36:618–41. <https://doi.org/10.1177/0265407517739162>.
16. Zillmann D. Influence of unrestrained access to erotica on adolescents’ and young adults’ dispositions toward sexuality. *J Adolesc Health.* 2000;27(S2):41–4.
17. Senn C, Radtke H. Women’s evaluations of and affective reactions to mainstream violent pornography, nonviolent erotica and erotica. *Violence Vict.* 1990;5(3):143–55.
18. Cooper A, Morahan-Martin J, Mathy RM, Maheu M. Toward an increased understanding of user demographics in online sexual activities. *J Sex Marital Ther.* 2002;28(2):105–29. <https://doi.org/10.1080/00926230252851861>.
19. Grov C, Gillespie BJ, Royce T, Lever J. Perceived consequences of casual online sexual activities on heterosexual relationships: a U.S. online survey. *Arch Sex Behav.* 2011;40(2):429–39. <https://doi.org/10.1007/s10508-010-9598-z>.
20. Ballester-Arnal R, Castro-Calvo J, Gil-Llario MD, Giménez-García C. Relationship status as an influence on cybersex activity: cybersex, youth, and steady partner. *J Sex Marital Ther.* 2014;40(5):444–56. <https://doi.org/10.1080/0092623X.2013.772549>.
21. Wéry A, Billieux J. Problematic cybersex: conceptualization, assessment, and treatment. *Addict Behav.* 2017;64:238–46. <https://doi.org/10.1016/j.addbeh.2015.11.007>.
22. Kohut T. An empirical investigation of the concept of “pornography”. *Electronic Thesis and Dissertation Repository* 2014;2063. <https://ir.lib.uwo.ca/etd/2063>. Retrieved on January 17th, 2019.
23. Reid RC, Li DS, Gilliland R, Stein JA, Fong T. Reliability, validity, and psychometric development of the pornography consumption inventory in a sample of hypersexual men. *J Sex Marital Ther.* 2011;37(5):359–85. <https://doi.org/10.1080/0092623X.2011.607047>.
24. Willoughby BJ, Carroll JS, Busby DM, Brown CC. Differences in pornography use among couples: associations with satisfaction, stability, and relationship processes. *Arch Sex Behav.* 2016;45(1):145–58. <https://doi.org/10.1007/s10508-015-0562-9>.
25. • Wright PJ, Tokunaga RS, Bae S. More than a dalliance? Pornography consumption and extramarital sex attitudes among married U.S. adults. *Psychol Pop Media Cult.* 2014;3(2):97–109. <https://doi.org/10.1037/ppm0000024> **This study examines the directionality of the associations between pornography use and extramarital sex attitudes controlling for sociodemographic variables, general and marital unhappiness, and religiosity.**
26. Leonhardt ND, Willoughby BJ. Longitudinal links between pornography use, marital importance, and permissive sexuality during emerging adulthood. *Marriage Fam Rev.* 2018;54(1):64–84. <https://doi.org/10.1080/01494929.2017.1359811>.
27. Hald GM, Malamuth NM. Self-perceived effects of pornography consumption. *Arch Sex Behav.* 2008;37(4):614–25. <https://doi.org/10.1007/s10508-007-9212-1>.
28. Albright JM. Sex in America online: an exploration of sex, marital status, and sexual identity in internet sex seeking and its impacts. *J Sex Res.* 2008;45(2):175–86. <https://doi.org/10.1080/00224490801987481>.
29. Buzzell T. Demographic characteristics of persons using pornography in three technological contexts. *Sex Cult.* 2005;9(1):28–48. <https://doi.org/10.1007/BF02908761>.
30. Sun C, Bridges A, Johnson JA, Ezzell MB. Pornography and the male sexual script: an analysis of consumption and sexual relations. *Arch Sex Behav.* 2016;45(4):983–94. <https://doi.org/10.1007/s10508-014-0391-2>.
31. Regnerus M, Gordon D, Price J. Documenting pornography use in America: a comparative analysis of methodological approaches. *J Sex Res.* 2016;53(7):873–81. <https://doi.org/10.1080/00224499.2015.1096886>.

32. Daneback K, Træen B, Månsson S-A. Use of pornography in a random sample of Norwegian heterosexual couples. *Arch Sex Behav.* 2009;38(5):746–53. <https://doi.org/10.1007/s10508-008-9314-4>.
33. Bridges AJ, Morokoff PJ. Sexual media use and relational satisfaction in heterosexual couples. *Pers Relat.* 2011;18(4):562–85. <https://doi.org/10.1111/j.1475-6811.2010.01328.x>.
34. Carroll JS, Busby DM, Willoughby BJ, Brown CC. The porn gap: differences in men's and women's pornography patterns in couple relationships. *J Couple Relatsh Ther.* 2017;16(2):146–63. <https://doi.org/10.1080/15332691.2016.1238796> **This study examines gender differences in pornography patterns of individuals in heterosexual couple relationships including awareness of the partner's use, viewing alone or as a couple, and acceptance of pornography.**
35. Lambert NM, Negash S, Stillman TF, Olmstead SB, Fincham FD. A love that doesn't last: pornography consumption and weakened commitment to one's romantic partner. *J Soc Clin Psychol.* 2012;31(4):410–38. <https://doi.org/10.1521/jscp.2012.31.4.410>.
36. Maddox AM, Rhoades GK, Markman HJ. Viewing sexually-explicit materials alone or together: associations with relationship quality. *Arch Sex Behav.* 2011;40(2):441–8. <https://doi.org/10.1007/s10508-009-9585-4>.
37. Yucel D, Gassanov MA. Exploring actor and partner correlates of sexual satisfaction among married couples. *Soc Sci Res.* 2010;39(5):725–38. <https://doi.org/10.1016/j.ssresearch.2009.09.002>.
38. Olmstead SB, Negash S, Pasley K, Fincham FD. Emerging adults' expectations for pornography use in the context of future committed romantic relationships: a qualitative study. *Arch Sex Behav.* 2013;42(4):625–35. <https://doi.org/10.1007/s10508-012-9986-7>.
39. Poulsen FO, Busby DM, Galovan AM. Pornography use: who uses it and how it is associated with couple outcomes. *J Sex Res.* 2013;50(1):72–83. <https://doi.org/10.1080/00224499.2011.648027>.
40. Szymanski DM, Stewart-Richardson DN. Psychological, relational, and sexual correlates of pornography use on young adult heterosexual men in romantic relationships. *J Mens Stud.* 2014;22(1):64–82. <https://doi.org/10.3149/jms.2201.64>.
41. Muusses LD, Kerkhof P, Finkenauer C. Internet pornography and relationship quality: a longitudinal study of within and between partner effects of adjustment, sexual satisfaction and sexually explicit Internet material among newly-weds. *Comput Hum Behav.* 2015;45:77–84. <https://doi.org/10.1016/j.chb.2014.11.077> **This study examines the directionality of the associations between pornography use and relationship and sexual satisfaction including partner effects using a three-year prospective design.**
42. Doran K, Price J. Pornography and marriage. *J Fam Econ Iss.* 2014;35:489–98. <https://doi.org/10.1007/s10834-014-9391-6>.
43. Wetterneck CT, Burgess AJ, Short MB, Smith AH, Cervantes ME. The role of sexual compulsivity, impulsivity, and experiential avoidance in Internet pornography use. *Psychol Rec.* 2012;62:3–18.
44. Daspe M-È, Vaillancourt-Morel M-P, Lussier Y, Sabourin S, Ferron A. When pornography use feels out of control: the moderation effect of relationship and sexual satisfaction. *J Sex Marital Ther.* 2018;44(4):343–53. <https://doi.org/10.1080/0092623X.2017.1405301>.
45. Brown CC, Carroll JS, Yorgason JB, Busby DM, Willoughby BJ, Larson JH. A common-fate analysis of pornography acceptance, sse, and sexual satisfaction among heterosexual married couples. *Arch Sex Behav.* 2017;46(2):575–84. <https://doi.org/10.1007/s10508-016-0732-4>.
46. Staley C, Prause N. Erotica viewing effects on intimate relationships and self/partner evaluations. *Arch Sex Behav.* 2013;42(4):615–24. <https://doi.org/10.1007/s10508-012-0034-4>.
47. Park BY, Wilson G, Berger J, Christman M, Reina B, Bishop F, et al. Is Internet pornography causing sexual dysfunctions? A review with clinical reports. *Behav Sci.* 2016;6:17. <https://doi.org/10.3390/bs6030017>.
48. Mollaioli D, Sansone A, Romanelli F, Jannini EA. Sexual dysfunctions in the Internet era. In: Jannini EA, Siracusano A, editors. *Sexual dysfunctions in mentally ill patients. Trends in andrology and sexual medicine. Trends in andrology and sexual medicine.* Cham, Switzerland: Springer; 2018. pp. 163–72.
49. Bergner RM, Bridges AJ. The significance of heavy pornography involvement for romantic partners: research and clinical implications. *J Sex Marital Ther.* 2002;28(3):193–206. <https://doi.org/10.1080/009262302760328235>.
50. Schneider JP. Effects of cybersex addiction on the family: results of a survey. *Sex Addict Compuls.* 2000;7(1–2):31–58. <https://doi.org/10.1080/10720160008400206>.
51. Zitzman ST, Butler MH. Wives' experience of husbands' pornography use and concomitant deception as an attachment threat in the adult pair-bond relationship. *Sex Addict Compuls.* 2009;16(3):210–40. <https://doi.org/10.1080/10720160903202679>.
52. Stewart DN, Szymanski DM. Young adult women's reports of their male romantic partner's pornography use as a correlate of their self-esteem, relationship quality, and sexual satisfaction. *Sex Roles.* 2012;67(5–6):257–71. <https://doi.org/10.1007/s11199-012-0164-0>.
53. Szymanski DM, Feltman CE, Dunn TL. Male partners' perceived pornography use and women's relational and psychological health: the roles of trust, attitudes, and investment. *Sex Roles.* 2015;73(5–6):187–99. <https://doi.org/10.1007/s11199-015-0518-5>.
54. Tylka TL, Kroon Van Diest AM. You looking at her “hot” body may not be “cool” for me: integrating male partners' pornography use into objectification theory for women. *Psychol Women Q.* 2014;39(1):67–84. <https://doi.org/10.1177/0361684314521784>.
55. Maas MK, Vasilenko SA, Willoughby BJ. A dyadic approach to pornography use and relationship satisfaction among heterosexual couples: the role of pornography acceptance and anxious attachment. *J Sex Res.* 2018;55(6):772–82. <https://doi.org/10.1080/00224499.2018.1440281>.
56. Perry SL. Does viewing pornography reduce marital quality over time? Evidence from longitudinal data. *Arch Sex Behav.* 2017;46(2):549–59. <https://doi.org/10.1007/s10508-016-0770-y> **This study examines if pornography use is associated with marital quality six years later.**
57. Perry SL, Schleifer C. Till porn do us part? A longitudinal examination of pornography use and divorce. *J Sex Res.* 2018;55(3):284–96. <https://doi.org/10.1080/00224499.2017.1317709> **This study uses three-wave longitudinal data over eight years to examine the association between pornography use and the likelihood of divorce over time.**
58. Resch MN, Alderson KG. Female partners of men who use pornography: are honesty and mutual use associated with relationship satisfaction? *J Sex Marital Ther.* 2014;40(5):410–24. <https://doi.org/10.1080/0092623X.2012.751077>.
59. Busby DM, Chiu HY, Olsen JA, Willoughby BJ. Evaluating the dimensionality of pornography. *Arch Sex Behav.* 2017;46(6):1723–31. <https://doi.org/10.1007/s10508-017-0983-8>.