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**Empirical evidence of the effects of pornography on  
attitudes toward women and sexual violence: A systematic  
review**

Author: Sandra Sánchez González

Tutors: José Manuel Caperos Montalbán and Nereida Bueno  
Guerra

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## Abstract

Pornography consumption has generated for decades a debate that persists today about the effects that it may have on consumers. Its consequences are of concern due to factors such as the low age of pornography consumers, its use as a substitute for sex education, its widespread use, its availability, and the presence of inequality and violence in pornographic material. Object of study: while other studies have focused on effects such as sexual dysfunction or the practice of risky behaviors, the purpose of this systematic review was to find out whether pornography has effects on attitudes towards women and sexual violence. Specifically, four constructs were studied: sexism, objectification, violence against women, and sexual violence. Method: in order to obtain the articles, a systematic search was carried out in five databases: PubMed, PsycINFO, Cochrane, P&BSC, WOS. Of the 1027 articles located, following the chosen inclusion and exclusion criteria, we selected a total of 29, which constitute the final sample. Key findings: the results suggest that there is a positive relationship between general pornography and objectification, violent and degrading material and sexism, and violent pornographic depictions and acceptance of sexual violence. The only construct not related to pornography exposure was the acceptance of violence against women. Limitations: the results cannot be generalized, as the literature sample consisted mostly of young North American male adults. The existence of non-conclusive results and the limited generalization of them highlight the importance of future research to obtain a better knowledge of pornography effects.

*Keywords*: systematic review, pornography, attitudes toward women, sexism, objectification, sexual violence.

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## Introduction

Nowadays, pornography consumption is a very present phenomenon that generates concern and social debate about the effects that it may have on consumers. Indeed, during the last decade the PubMed health sciences database has doubled the whole number of studies about pornography of the entire period before 2010 (796 records from 2010 to 2020 vs. 335 from 1951 to 2009). Concretely, research has focused on pornography and negative effects such as addiction (Duffy et al., 2016), sexual dysfunction (de Alarcón et al., 2019), and the practice of risky sexual behaviors (Harkness et al., 2015). Recently, these negative effects have expanded to the potential increase in the level of aggression and gender inequality since the analysis of the content yields evident disparity between women and men, with women preferentially being depicted as passive agents who suffer aggression and who are relegated to a place of inferiority compared to men (Carrotte et al., 2020). This concern has also permeated to the feminist struggle. Since the 1970s, there has been a debate between anti-pornography feminism and post-pornography feminism (del Barrio-Álvarez & Garrosa, 2015). On the one hand, Catharine MacKinnon, Andrea Dworkin, Robin Morgan, Susan Brownmiller, and Kathleen Barry are some of the most relevant feminists from the anti-pornography movement (radical feminism). The anti-pornography feminist links pornography with women's civil rights. They argued that pornography depicts men's power over women and leads to women's objectification (Prada, 2020). Besides, according to the feminist motto "Pornography is the theory; rape is the practice" (Morgan, 2014, p. 10), they also held that pornography has an imitation effect that provokes violence against women in the real world (Prada, 2020). Furthermore, they believed that pornography maintains a sexual contract that gives men sexual rights over women (Prada, 2020). On the other hand, in the post-pornography movement (cultural feminism), some salient figures are the feminists Gayle Rubin, Carole S. Vance, Alice Echols, and Pat Califia (Prada, 2020). By contrast, the post-pornography movement disagrees with the radical's arguments. For instance, in their opinion there is no scientific consensus regarding the adverse effects of pornography, and, therefore, the supposed relationship between pornography and violence against women is not proven (Prada, 2020). In addition, Vance (1984) affirmed that the anti-pornography movement shamed women about sex and claimed the importance of talking about sexuality. Despite their positions, both movements agree that pornography often shows violence and inequality towards women, but their proposals differ: the former considers that pornography should be abolished, whereas the latter advocates for intervention in pornography but not for its eradication (del Barrio-Álvarez & Garrosa, 2015).

Regardless of the different proposals, the fact is that the use of pornography is being increasingly accepted worldwide compared to previous times (Kor et al., 2014). The estimation about the amount of pornographic material available is 12% of the total Surface web's content (Twohig et al., 2009; Young, 2008), which may be even higher if the Deep Web was also included in the analysis (Martín Ibáñez, 2017). With regards to its consumption, during 2019 Pornhub, the most visited website in the world in this sector, reported 42 billion visits, namely, 115 million every day, being Spain among the top 20 user countries (Pornhub, 2019). In 2020, due to the Coronavirus pandemic and subsequently nationwide lockdowns, the percentage of visualizations increased even more dramatically: the highest peak occurred on March 25th with an increase of 24.4% compared to February of the same year (Pornhub, 2020). Specifically, in Spain, it increased by 70.3% on March 17th, just three days after the state of alarm was decreed (Pornhub, 2020). Hence, discussions about the potential impact upon consumers' beliefs, emotions, and behaviors have been raised (Mestre-Bach et al., 2020; Paul et al., 2020; Perissini, 2020).

One of the concerns raised refers to the age of the consumers. Cooper and Klein (2018) found out that 48.8% of college students in the United States had consumed pornography in the past six months. This data implied that at least, half of those under 25 years old regularly consume pornography online. However, due to the ease of access to pornography, it is minors (kids and teenagers) the potential consumer segment that provokes higher concern to society. In Spain, 63.7% of minors between 13 and 17 years old have watched pornographic content at least once; more than half (53.8%) did it for the first time before the age of 12 (Sanjuán, 2020). The main source of concern for this population group is the lack of critical thinking they may be able to apply to the content they watch because many of these users take pornography as a substitute for sex education, with 30% of minors between 13 and 17 years of age acknowledging that it is the only medium through which they obtain information about sexuality (Sanjuán, 2020).

This is especially alarming if violence and inequality would be present in most of the pornographic content. Indeed, in a study conducted in New Zealand, researchers analyzed almost 200 pornographic videos and found that there was no consent in more than a third, and physical aggressions appeared in 10% of them (Davison, 2019). Fritz et al. (2020) analyzed 4009 heterosexual pornographic scenes and found a higher percentage of physical aggression: 45% (Pornhub) and 35% (Xvideos). In addition, there is illegal pornographic material available that was uploaded or recorded without the individual's consent, as it is the case of porn revenge (Uhl et al., 2018) or child sexual abusive material (Negredo & Herrero, 2016). Two clear

examples of this illegal material are a missing minor in the United States who was found when at least 58 sexually implicit videos were located on pages such as Pornhub or Modelhub (Betz, 2019), and the case of an adult woman, Rose Kalemba, who found videos of the rape she suffered at age 14 on Pornhub (Mohan, n.d.). Moreover, consumers actively seek some of these videos. In Spain, the search of a video of a sexual abuse of a woman committed and recorded by the Spanish group of young people nicknamed "La manada" became tendency in pornographic browsers (Iveco worker's video, most searched for on porn sites, 2019; penal law sentence STS 2200/2019 July 4th). The widespread use of pornography, and therefore the presence of this illegal and degrading content, as well as the substitution of sex education with this material by youngsters, raises concern about the possible consequences it may have on them. Specifically, it is conceivable to think that young people having access to this material may become adults harboring inequality beliefs. Hence, due to the widespread use of pornography by minors and young adults, and given that some of the available pornography contains these violent and demeaning features, it is deemed appropriate to study whether watching this material may be extrapolated to real life and which kind of effects, if any, this content may have on consumers' behaviors and attitudes.

Therefore, the purpose of this paper is to study the evidence in the literature on the effects of pornography on attitudes towards women and sexual violence. Thus, the objectives are as follows: to systematically review the literature to locate studies that analyze such effect, to analyze the studies located, and to comparatively integrate the results of the different studies.

### **Method**

We considered five databases for the bibliographic search: PubMed, PsycINFO, Cochrane, Psychology & Behavioral Sciences Collection (P&BSC), and Web of Science (WOS). For all the databases, a different search equation was developed (see Table A1) based on Boolean operators to adapt the search terms and their various combinations to each of them and, thus, be able to obtain relevant studies for the objective of the systematic review. We performed equations that yield a high number of results (n=1027) not to exclude any significant article. Afterwards, the articles were screened by hand based, firstly, on the title and abstract, and, secondly, on our inclusion and exclusion criteria (see Figure 1): empirical studies written in English or Spanish quantitatively measuring the effects of pornography on attitudes towards women and beliefs related to sexual violence. Therefore, those articles studying the effects of pornography on behavioral aspects (i.e., sexual aggressions) or victimization have been excluded, as well as those studies using qualitative methods. In addition, the selected studies

must measure the effects of pornography on attitudes toward women and sexual violence directly (i.e., administering self-report questionnaires to consumers as opposed to interviewing experts or pornographic actresses). We defined pornography as audiovisual sexually explicit material with adult representations seeking to sexually arouse consumers. Therefore, those studies using pornographic magazines, texts, audios, or images have not been included, as the intensity of the material might be lower than videos. With respect to the sample, we only included those studies matching the general population characteristics, namely, we excluded studies with clinical samples (i.e., people with sex addiction, women victims of maltreatment, people who committed sexual aggressions). Lastly, studies using non-objective measures (i.e., experimenter reporting her impressions of the subject) have also been excluded.

### **Constructs**

We identified four constructs as the object of this study: sexism, objectification, attitudes toward sexual violence, and attitudes toward violence against women. Swim & Hyers (2009) define sexism as “individuals' attitudes, beliefs, and behaviors, and organizational, institutional, and cultural practices that either reflect negative evaluations of individuals based on their gender or support unequal status of women and men” (p. 407). Yet, it is necessary to make a distinction between two types of sexism: hostile sexism and benevolent sexism. While the former refers to the “attitude of prejudice or discriminatory behavior based on the supposed inferiority or difference of women as a group” (Garaigordobil & Aliri, 2011, p. 332, i.e., “Considering that a woman’s place is cleaning at home”), the latter refers to attitudes which might be positive in appearance but that still maintain gender roles in disguise (Glick & Fiske, 1996, i.e., “a man should protect his wife and provide for her economic security”). Meanwhile, objectification is defined by Loughnan and Pacilli (2014, p. 309) as “seeing or treating another person as a sexualized object”. Regarding the attitudes toward sexual violence (ATSV) construct, it refers to the attitudes toward rape and the acceptance of its myths. Burt (1980, p. 217) defines rape myths as “prejudicial, stereotyped, or false beliefs about rape, rape victims, and rapists”, such as agreeing with rape being women’s responsibility. Lastly, the construct “attitudes towards violence against women” (ATVAW) includes all types of violence, unlike the previous construct which exclusively refers to sexual violence.

### **Variables**

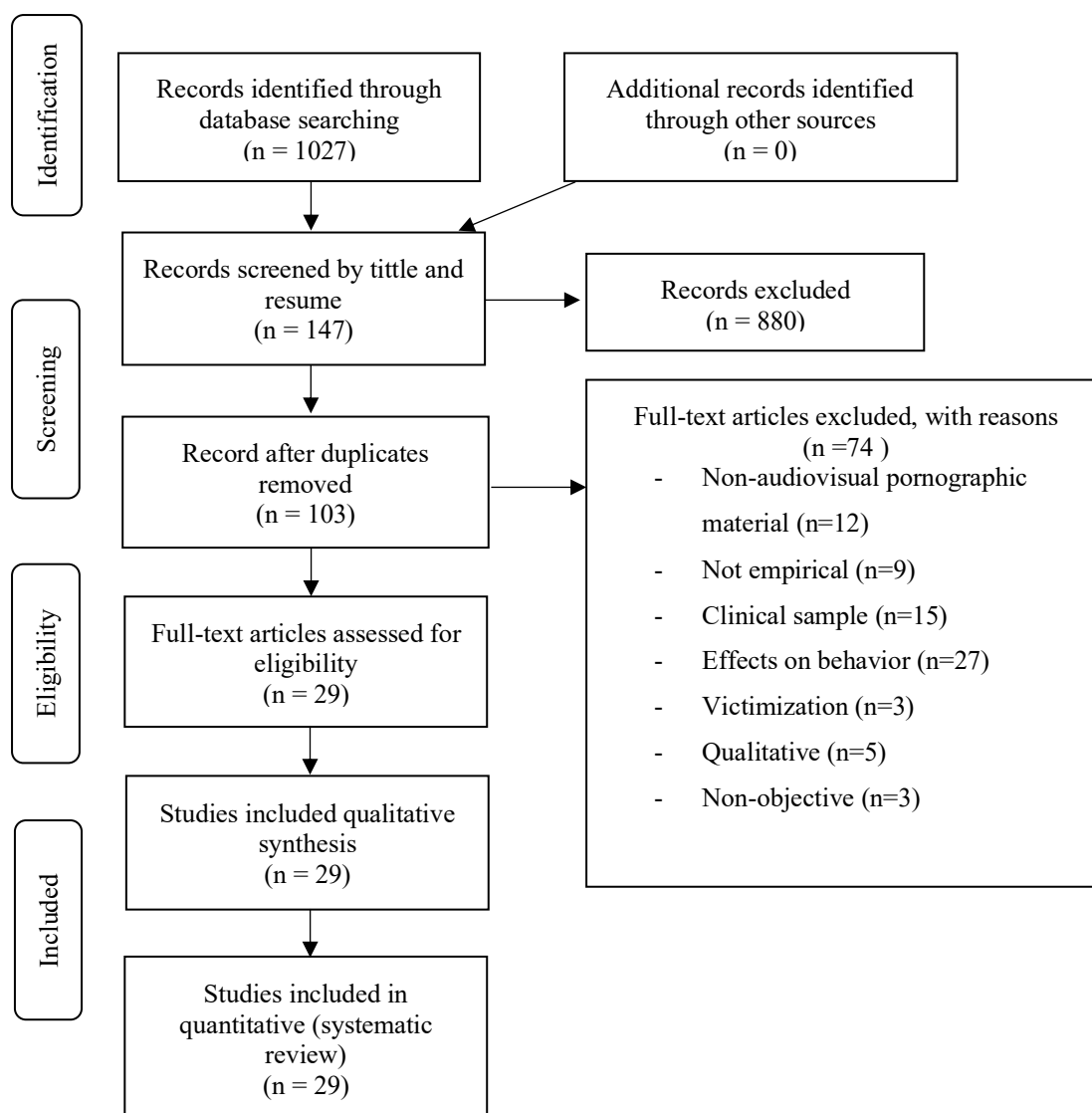
Within all the articles selected, we analyzed three variables:

1. Methodological variables: study design and type (Experimental (Randomized/quasi-experimental)/Observational (Prospective/Retrospective)), dependent and independent variables, sample size.
2. Sample variables: men proportion, mean age (standard deviation), minimum age, maximum age, population type, sexual orientation, education level, country, ethnicity, religiosity, political orientation, and relationship status.
3. Result variables: we looked for significant and non-significant results in which the constructs of interest (sexism, attitudes toward sexual violence, attitudes toward violence against women, and objectification) were considered independent variables. We also reported the effect size of these results.

## Research Strategy

**Figure 1**

Flow diagram





## Results

We only extracted the information related to the object of the systematic review from the articles. Appendix B gathers the information related to internal and external validity and Table 1 provides information about the results related to the constructs of interest.

**Table 1**

Article	Relevant findings	Effect size
Zillman and Bryant (1982)	Massive exposure was significantly associated with attitudes toward sexual violence (#incarceration recommendation for rape) and sexism (#support for the women's liberation movement) for men and women., There were #gender differences as women were more punitive and supportive than men. Moreover, massive exposure also had a significant relationship with #sexual callousness toward women for men (sexism).	#Incarceration recommendation for rape $F(3,152) = 3.61, p < .05$ #Support for the women's liberation movement $F(3, 152) = 12.34, p < .05$ #Gender differences: incarceration recommendation for rape $F(1, 152) = 6.12, p < .05$ ; Support for the women's liberation movement $F(1, 152) = 8.77, p < .05$ #Sexual callousness toward women $F(3,76) = 14.79, p < .05$
García (1986)	Exposure to general pornography and sexism were not correlated. Yet, there was a significant positive relationship between violent pornography and sexism in five of the six subscales of the #AWS. Therefore, the higher the use of violent pornography, the higher the level of sexism. The only exception was found in both violent and nonviolent pornography, where pornography use increased #liberal attitudes toward the sexual behavior of women. General and nonviolent pornography were not significantly correlated with attitudes toward sexual violence (ATR), except for one subscale in the former (#women should resist rape) and another one in the latter (#motivation is power). Yet, there was a significant	General pornography: #Women should resist rape $r = -.10, p < .05$ Violent pornography: #AWS $r = -.08, p < .05$ , $r = -.07, p < .05$ , $r = -.11, p < .01$ , $r = -.08, p < .05$ , $r = -.12, p < .01$ ; #liberal attitudes toward the sexual behavior of women $r = .08, p < .05$ ; #Women responsible for prevention $r = 0.8, p < .05$ ; #Rapist should be punished $r = -$

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	correlation between violent pornography and four out of the eight subscales (#women responsible for prevention; #rapist should be punished; #rapist are normal; #women should resist).	0.7, $p < .05$ ; #Rapist are normal $r = .11$ , $p < .01$ ; #Women should resist $r = -.10$ , $p < .05$ Non-violent pornography: #liberal attitudes toward the sexual behavior of women $r = .11$ , $p < .01$ ; #Motivation is power $r = 0.7$ , $p < .05$
Demaré et al. (1988)	Pornography use (violent/nonviolent/sexually violent) and attitudes (RMA, AIV, ASB, AWS) were not significantly interrelated.	NS
Linz et al. (1988)	A high dose of exposure to R-rated violent videos produced a marginally significant decrease of #sympathy for the trial victim compared to non-exposure. The same happened when the dose was not considered. Rape empathy significantly decreased when watching R-rated violent movies. The dose had an effect, as higher exposure lowered empathy. No significant effects on victim injury. Degrading pornography is not associated with any of the independent variables.	#Sympathy for the trial victim: dose and video type $F$ change (2,81) = 1.76, $p < .18$ ; Video type $t = 1.746$ , $p < .09$ . #Rape empathy: R-rated video and dose $F$ change (2, 88) = 3.66, $p < .03$ ; Dose $b = -2.84$ , $t = -2.703$ , $p < .008$
Linz et al. (1989)	There are significant differences between the effects of violent pornography and nonpornographic material on #injury and #male's responsibility. Exposure to violent videos led to judge women as less injured but to attribute more responsibility to men. There were no more significant differences.	#Injury $M_{\text{control}} = 31.92$ ; $M_{\text{violence}} = 29.61$ ; $F$ ( $df = 1.55$ ) = 4.24, $p < .044$ #Male's responsibility $M_{\text{control}} = 45.71$ ; $M_{\text{violence}} = 49.70$ ; $F$ ( $df = 1.55$ ) = 4.59, $p < .037$
	Pornography use and attitudes were not significantly associated.	NS
Padgett et al. (1989)	Pornography use and attitudes were not significantly associated. However, the multiple regression analysis showed a tendency between hours of watching and age and sexism (#sexual conservatism).	#Sexual conservatism $.10 > p's > .07$
	No significant differences in attitudes comparing people who watched sexually explicit videos and non-sexual explicit videos.	NS

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Demaré et al. (1993)	Violent pornography was significantly correlated with #anti-women attitudes (AWS, RAM, AIV). It was significantly correlated with higher sexism (AWS) and negative attitudes toward sexual violence (RMA) and violence against women (AIV).	#Anti-women attitudes $p < .01$ <sup>1</sup>
Fisher and Grenier (1994)	No effects of exposure to pornography (violent man-woman sexual interaction with a positive outcome for the woman victim/with a negative outcome/nonviolent man-woman sexual interaction) on attitudes (ATWS, WMS, AIV, RMA).	NS
Weisz and Earls (1995)	Men exposed to sexual violence were significantly more #accepting of rape myths than those who watched physical violence or neutral material. Men exposed to sexual violence against men were significantly less #sympathetic toward the victim than those who watched physical violence.	#Rape myth acceptance $F(3, 83) = 3.09, p < .05$ ; sexual violence against man $M = 26.63$ ; sexual violence against woman $M = 28.52$ ; physical aggression $M = 17.80$ ; neutral material $M = 19.16$ ; $t(3, 83) = 3.04$ #Victim sympathy $F(3, 184) = 6.60, p < .001$ ; sexual violence against man $M = 8.00$ ; physical violence $M = 11.90$
Davies (1997)	No significant relationship between the amount of pornography use (X-rated videos rented) and attitudes (support for the Equal Rights Amendment and law against marital rape and opinions on punishment for marital and date rape).	NS
Jansma et al. (1997)	There were no significant differences in objectification (Sexual attractiveness, Intellectual competence, Sexual interest, Sexual permissiveness) when watching sexual/non-sexual and degrading/non-degrading pornography.	NS
Bauserman (1998)	Sexism (Sex Role Egalitarianism) decreased after watching #egalitarian sexual material and marginally increased with #sexually aggressive material. Sexist material and sexism were not significantly associated. There were no other	#Egalitarian sexual material $F(1, 106) = 4.50, p = .036, d = .39$

<sup>1</sup> No more data provided in the article.

	significant relationships related to the other sexism measure (Adversarial Sexual Beliefs) and attitudes toward sexual violence (RMA).	#Sexually aggressive material $F(1, 106) = 3.56, p = .062, d = .35$
	The amount of exposure to sexually explicit material on the internet and the past pornography consumption were not significantly related to sexism (ATWS, WAMS) and attitudes toward sexual violence (RMA).	<i>NS</i>
Barak et al. (1999)	No significant differences in sexism (ATWS, WAMS) and attitudes toward sexual violence (RMA) regarding the amount of exposure to sexually explicit material on the internet. However, past pornography consumption (SMES) was associated with the acceptance of rape myths (#RMA).	#RMA Simple $R = 24, R = 73, p < .05, R^2 = 54, \beta = 44, F = 10.40, p < .05$
	There were no differences in attitudes toward sexual violence (RSAS) when watching explicit or nonexplicit videos. Explicit-degrading videos led to lower #SCS scores (sexism) than nonexplicit-degrading videos, but that difference was not significant in non-degrading videos. Furthermore, there was no significant relationship between exposure to pornography (any type) and AWS.	#Degrading videos $F(1,79) = 8.10, p < .01, M_{\text{degrading}} = 42.88, M_{\text{nondegrading}} = 34.15$ #SCS $p < .05, M_{\text{degrading}} = 11.05, M_{\text{nonexplicit}} = 12.96$
Golde et al. (2000)	Pornography exposure was not significantly associated with sexist attitudes (MSS, ATWS, OFSS). The hierarchical regression showed that when exposure to pornography increased, #modern sexism decreased (MSS), but not significantly.	#Modern sexism $B = -.15, SE B = 0.8, \beta = -.17, F\Delta(1, 121) = 3.165, p < .08$
Garos et al. (2004)	Ambivalent sexism and hostile sexism were two independent constructs. While there was no relationship between pornography use and hostile sexism, there was a significant positive correlation between pornography use and #benevolent sexism in the hierarchical regression. Moreover, #benevolent sexism was more correlated with men than with women.	#Benevolent sexism $B = .13, SE B = 0.6, \beta = .15, p < .05$ Gender differences: #benevolent sexism for men $r = .38, p < .01$ , for women $r = .06, ns$ . $Rsq\Delta = .05, F\Delta(1, 135) = 10.69, p < .005$
McKee (2007)	Pornography use and sexism were not significantly associated.	<i>NS</i>
Peter and Valkenburg (2009)	Exposure to Sexual Explicit Internet Material (SEIM) led to a higher #objectification of women, with no influence of gender.	#Objectification $r = .35, p < .001, \beta = .15, B = .079, SE = .018, p < .001$

Foubert et al. (2011)	There was no significant relationship between the #acceptance of rape myths and mainstream pornography, yet it was with sadomasochistic and rape pornography. Therefore, there was a positive correlation between attitudes toward sexual violence and sadomasochistic and rape pornography.	#acceptance of rape myths: Sado-Masochistic pornography $r = .156, p < .01$ ; Rape pornography $r = .161, p < .01$
Hald et al. (2013)	For men, there was a significant correlation between past pornography use and sexism (#ATWS and #hostile sexism), but not with general and ambivalent sexism. Yet, there was no significant correlation between past pornography consumption and sexism for women. Experimental exposure just had an effect on #benevolent sexism for women, increasing it.	#ATWS $r = -.21, p < .05$ #Hostile sexism $r = .30, p < .01$ #Benevolent sexism $t = 3.72, df = 195, p < .01$ ; Cohen's ( $d$ ) = 0.54
Wright and Funk (2014)	Pornography use was significantly and positively associated with sexism (#opposition to affirmative action for women). There was no effect of gender on the relationship.	#Opposition to affirmative action for women $\beta = .13, p < .045$
Hald and Malamuth (2015)	Higher levels of past pornography consumption were associated with higher #attitudes supporting violence against women for men and women. There was no effect of the exposure group (control vs. experimental) on attitudes.	#Attitudes Supporting violence against women: men: $\Delta R^2 = .06, p < .05, \beta = 2.50, p < .05$ ; Women = $\Delta R^2 = .07, p < .01, \beta = 3.36, p < .01$
Wright and Bae (2015)	Pornography consumption and gender-role attitudes were not directly associated. They were in people of #45, #50, #55, and #60 years old.	#45 $\beta = 0.09, p < .05$ ; #50 $\beta = 0.13, p < .01$ ; #55 $\beta = 0.17, p < .01$ ; #60 $\beta = 0.21, p < .01$
Stanley et al. (2016)	Regularly watching pornography was significantly associated with higher #sexism. Boys who watched pornography regularly (R) were more likely to agree with the item that measured #attitudes on sexual violence compared to those who did not (NR).	#Sexism: standardized residuals and $\chi^2(2)$ Bulgaria: (R) = 2.1, $p < .05$ ; (NR) = -1.9; $\chi^2(2) = 15.497, p < .001$ ; Cyprus: (R) = 2.1, $p < .05$ ; (NR) = -2.5, $p < .05$ ; $\chi^2(2) = 15.497, p < .001$ ; England: (R) = 3.1, $p < .05$ ; (NR) = -2.4, $p < .05$ ; $\chi^2(2) = 15.497, p < .001$ ; Italy: (R) = 4.5, $p < .05$ ; (NR) = -4.0, $p < .05$ ; $\chi^2(2) = 15.497, p < .001$ ; Norway: (R) = 2.2, $p < .05$

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		.05; (NR) = -2.1, $p < .05$ ; $\chi^2(2) = 15.497, p < .001$
		#Attitudes on sexual violence <i>NS</i>
Wright and Tokunaga (2016)	Pornography use was directly associated with #objectification but not with acceptance of violence against women, as objectification mediated the relation.	#Objectification $\beta = 0.24, SE = 0.08, p = .001$
Skorska et al. (2018)	Watching degrading pornography led to higher #hostile sexism than watching erotica or neutral films. However, there were no significant differences in hostile sexism between erotica and nonpornographic videos. There were not either in essentialist beliefs and benevolent sexism between watching degrading pornography, erotica, and nonpornographic videos. Degrading pornography led to a higher objectification of women than erotic pornography, and nonexplicit films did (#sense of mind and #MSAT). In #sense of mind, there was a significant difference between erotica and non-sexual films, leading the former to higher objectification.	Degrading pornography: #sense of mind $MD_{\text{degrading-control}} = 2.12, SE = .43, p < .001, d = 1.42$ ; $MD_{\text{degrading-erotica}} = 0.92, SE = .45, p = .043, d = 0.54$ ; #MSAT $MD_{\text{degrading-control}} = 1.42, SE = .36, p < .001, d = 1.15$ ; $MD_{\text{degrading-erotica}} = 1.11, SE = .37, p = .004, d = 0.79$ ; #hostile sexism $MD_{\text{degrading-control}} = 0.79, SE = .29, p = .009, d = 0.78$ ; $MD_{\text{degrading-erotica}} = 0.73, SE = .30, p = .019, d = 0.70$ Erotica-Nonsexual films: #sense of mind $MD = 1.20, SE = .42, p = .006, d = 0.77$
Rostad et al. (2019)	Violent pornography use was significantly correlated with sexism (#gender equitable attitudes) and with attitudes toward sexual violence (#RMA).	#Gender equitable attitudes $r = -0.8, p < .05$ #RMA $r = .15, p < .05$
Kohut (2020)	There was a significant relationship between pornography use and #hostile masculinity in three of the five waves of the longitudinal study where both variables were measured.	#Hostile masculinity $r = .13, p < .001$ ; $r = .00, ns, r = 0.23, p < .001$ ; $r = .16, p < .001$ ; $r = .18, p < .001$ ; $r = 0.9, ns$
Miller et al. (2020)	Pornography use (violent/humiliating or not) had no relationship with sexism, either old-fashioned (OFSS) or modern (MSS).	<i>NS</i>

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Marshall et al. (2021)	Of the three variables studied, two of them, #rape myth acceptance and #victim willing, were significantly associated with pornography use. Victim pleasure was not.	#Rape myth acceptance $r = .138, p < .01$ #Victim Willing $r = 0.91, p < .05$
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*NS*, non-significant

## Discussion

This paper aimed to study the literature's evidence on the effects of pornography on attitudes towards women and sexual violence. With that purpose, we analyzed the 29 studies located and gathered the results about four constructs: sexism, objectification, attitudes toward violence against women, and attitudes toward sexual violence. Next, we go one by one providing the most relevant information.

### Sexism

With regard to sexism, the conclusions reached by the authors are not a consequence of the study design as both observational and experimental studies obtained divergent results. Due to the diversity of designs, we approached this construct from different perspectives: type of pornography (specific *versus* general), long-term exposure, and gender.

#### *Type of pornography*

Therefore, we can first divide the research into those which split pornography into different types (Bauserman, 1998, i.e., egalitarian, sexist, sexually aggressive) and those which did not. On the one hand, nine articles studied the effects of pornography on sexism depending on the material type. While four (44%) studies found no relationship between any pornography type and sexism (Demaré et al., 1988; Fisher and Grenier, 1994; Golde et al., 2000; Miller et al., 2020), others did. Formerly, Demaré et al. (1993), García (1986), and Rostad et al. (2019) concluded that violent pornography was associated with more sexist attitudes. Indeed, Skorska et al. (2018) did not obtain any significant difference between degrading pornography, erotica, and neutral material when analyzing essentialist beliefs and benevolent sexism but did find that degrading pornography led to more hostile sexism than erotica or nonpornographic material. Alike, Bauserman (1998) did not find any effect of pornography on adversarial sexual beliefs but did find a tendency showing that aggressive pornography decreased egalitarian attitudes. Due to the disparity of results, they are inconclusive, and we cannot conclude that pornography leads to sexist attitudes. However, it seems that it is not pornography, but the type of pornographic content, which can have adverse effects on beliefs about sex since mainstream pornography appears not to foster sexism.

On the other hand, of those studies that did not distinguish by type of pornography, only two (18%) obtained null results (Davies, 1997; McKee, 2007). Another three (27%) found that pornography decreased support for the women liberation movement, especially in men (Zillman & Bryant, 1982), and egalitarian attitudes (Stanley et al., 2016), and that it increased sexual callousness toward women in men (Zillman, 1982) and opposition to affirmative action



for women (Wright & Funk, 2014). Thus, they concluded that pornography increases sexist attitudes. In contrast to these five studies, most obtained mixed results (55%). For instance, Wright and Bae (2015) and Padgett et al. (1989) obtained no association between pornography exposure and their sexist measures at first. Yet, they found a tendency (Padgett et al., 1989) and a significant relationship (Wright & Bae, 2015) when they considered the subject's age in some of their independent variables (gender-role attitudes, sexual conservatism). In addition, other authors obtained opposite results. For example, Garos et al. (2004) found an effect of pornography on benevolent sexism but not on hostile sexism. Instead, Kohut (2020) found that hostile sexism increased in men. With respect to Hald et al. (2013), the opposite results occurred in their own study. While experimental exposure increased just men's hostile sexism and general sexist attitudes, past pornography consumption only increased benevolent sexism for women. Thus, once again, the results are not conclusive.

#### *Long-term exposure*

Another factor we took into account when studying sexism was long-term exposure to pornography. Two studies found a significant relationship for people aged between 45 and 60 as well as a tendency between pornography and sexism when the individuals' age was considered (Padgett et al., 1989; Wright & Bae, 2015). We hypothesize that the results are due to the accumulative and sustained exposure to pornography. Thus, it is possible that some effects of pornography occurred after long exposure since attitudes are acquired and interiorized over time.

#### *Gender effect*

Finally, almost half of the studies about sexism included women in their samples (47%), yet, of the nine articles, four of them did not differentiate the results by gender. Within the rest studies, two (40%) did not find gender effects but three did (60%). Regarding Hald et al. (2013), they found mixed results. Both men and women replied to questionnaires regarding sexism toward women and, while experimental exposure increased hostile sexism and general sexist attitudes on men but not on women, past pornography exposure increased benevolent sexism just for women. Therefore, even though they found differences between men and women, the study does not contribute to clarifying a possible gender effect. Zillman and Bryant (1982) obtained that the pornography effect was higher on men as sexual callousness toward women only increased for men, and women were more supportive of the women liberation movement. Lastly, Garos et al. (2004) found that pornography use and benevolent sexism were significantly more associated with men than with women. Thus, pornography may have a bigger effect on men, although the results lack of conclusiveness.

### *Unexpected positive effects*

In addition, three studies had unexpected results since positive pornography effects were eventually found. García (1986) obtained that pornography, regardless it was violent or not, increased liberal attitudes towards the sexual behavior of women. This may be because by watching women engaging in multiple sexual acts, consumers may normalize women engaging in such behaviors. However, acquiring positive attitudes towards women does not mean that those men cannot learn other negative attitudes. To set an example, Burns (2001) found that subjects exposed to a high amount of pornography described women in positive terms such as powerful, clever, or independent. Yet, they also held traditional oppressive attitudes about the role of women. In the second study, Golde et al. (2000) found that sexual callousness decreased. However, surprisingly, these positive results were only reached when watching degrading pornography but not with non-degrading material, albeit we could have expected that if sexist material decreases sexism, non-sexist would provoke that too. Lastly, Garos et al. (2004) found that the higher the pornography exposure, the lower the modern sexism, which refers to the assumption that sexism is not a problem anymore due to the improvement made in gender equality.

Traditionally, authors have focused preferentially on hostile sexism (Garos et al., 2004), yet, sexism is a construct that comprises two subtypes: hostile and benevolent sexism (Glick & Fiske, 1996). This may be the reason why most research yielded null results when analyzing the effects of pornography on the construct (Garos et al., 2014). However, in their research, Garos et al. (2014) studied the correlation between the subscales (hostile and benevolent sexism) of the Ambivalent Sexism Inventory (ASI, Glick & Fiske, 1996) and concluded that both subscales measured different constructs. Thus, despite both subscales measured sexism, in general, they were not dependent on each other and referred to different attitudes (i.e., an individual can hold hostile but not benevolent sexist attitudes and vice versa), and therefore should be measured both. Further research should approach sexism differentiating between hostile and benevolent subscales in order to reduce potential false-negative results and investigate the construct in its full complexity.

### **Objectification**

Only one study out of four obtained null results (Jansma et al., 1997). Instead, Peter and Valkenburg (2007), Wright and Tokunaga (2016), and Skorska et al. (2018) found that objectification increased as pornography exposure did it too. In the case of Skorska et al. (2018), the authors found that degrading pornography led to higher objectification than erotica.

Also, in one of the two items used to measure the construct, erotica led to higher objectification compared to non-sexual material. Overall, the results suggest that pornography increases the objectification of women. Besides, due to Skorska et al. (2018) results, we hypothesize that degrading depictions may be an exacerbating factor. The most striking result is the comparison of Jansma et al. (1997) and Skorska et al. (2018) studies. Despite both articles performed equal comparisons and used the same type of materials (degrading pornography, non-degrading pornography, neutral), they reached opposite conclusions. While Jansma et al. (1997) found no relationship between pornography and objectification, Skorska et al. (2018) did. As both studies were experimental, the type of design did not account for the disparity of the results. Therefore, we hypothesize that is due to the independent variables they measured, which were not the same. Jansma et al. (1997) measured sexual attractiveness, intellectual competence, sexual interest, and sexual permissiveness. Instead, Skorska et al. (2018), independent variables were sense of mind and mental states attributions.

#### *Gender effect*

All sample studies were comprised of men except one (Peter & Valkenburg, 2009). Concretely, they found that pornography had the same effects on both men and women with regards to objectification, which means that women also increased their notions of women as sex objects. Thus, further research should include women in their samples to replicate whether the effect is shared between genders. Until then, it seems evident that pornography leads to higher objectification, at least in men.

#### **Attitudes toward violence against women**

Our third construct was attitudes toward violence against women. We decided to separate the construct from attitudes toward sexual violence because the former includes all types of violence and not just sexual. From the 29 articles located, six of them studied this construct. All of the authors used the same scale for their studies, the Acceptance of interpersonal violence (AIV) scale (Burt, 1980), and almost all of the literature (80%) reached the same conclusion: pornography does not lead to the acceptance of attitudes toward violence against women. Just one of the five studies (20%) found that violent pornography increased the acceptance of interpersonal violence (Demaré et al., 1993). The fact that Demaré et al. (1993) studied the effects of different types of pornography cannot account for the diverging conclusions because the proper Demaré et al. (1988) and Fished and Grenier (1994) had previously considered different types too and they did not find any significant relationship. The study design cannot explain the difference either because Padgett et al. (1989) and Wright and

Tokunaga (2016) also conducted observational studies, with null results. Yet, it is true that none of those observational studies divided pornography into violent and nonviolent, which could have led to different results, as we have already seen in our outcomes (i.e., sexism) that violent material seems to have a major role in the acquisition of negative attitudes than nonviolent. Since this construct measures violence, it would not be unexpected that violent pornography increased the acceptance of violence against women. Yet, more research is needed to test this hypothesis.

#### *Gender effect*

Besides, all the samples were 100% men, except in Padgett et al. (1989), but they obtained null results. Therefore, these results seem to apply just to men. In the case of women, more studies would be necessary to reach a conclusion.

### **Attitudes toward sexual violence**

Finally, the last construct we analyzed was attitudes toward sexual violence. As with sexism, we divided the articles into two clusters: those studying the effects of different types of pornography and those studying general nonspecific pornography.

#### *Types of pornography*

Six studies differentiated between violent and nonviolent pornography. Demaré et al. (1988) and Fisher and Grenier (1994) (33%), the unique studies administering the Rape Myth Acceptance Scale (Burt, 1980), found no significant relationship between any pornography category and attitudes toward sexual violence. The other four (67%) obtained that violent pornography, sadomasochistic, and rape pornography led to higher acceptance of sexual violence. In the case of García (1986), he found a relationship between violent pornography and four of the eight subscales of the Attitudes Toward Rape Scale (Feild, 1978). Consequently, it appears that despite mainstream pornography does not increase the acceptance of sexual violence, violent pornography does. In addition, Weisz and Earls (1995) evidenced how important it is for the material to be at the same time violent and sexual, as they found that men accepted more rape myths when they watched violent pornography than when it was physical aggression.

#### *General nonspecific pornography*

Results are not conclusive: four out of nine studies (44%) obtained null results (Bauserman, 1998; Davies, 1997; Golde et al., 2000; Padgett et al., 1989). In contrast, two (33%) did find a relationship between pornography and attitudes, as higher exposure to pornography led to higher acceptance of sexual violence (Hald & Malamuth, 2015; Zillman &

Bryant, 1982) whereas another two (33%) found mixed results (Barak et al., 1999; Linz et al., 1989; Marshall et al., 2018). Linz et al. (1989) and Marshall et al. (2021) found a relationship for some variables (injury, male responsibility, victim willing, rape myth acceptance) but not for others (victim responsibility, perception of violence, self-reported psychological reaction, victim sympathy, victim attractiveness, victim pleasure). Barak et al. (1999) found a significant relationship between past pornography consumption and acceptance of rape myths albeit this relationship disappeared when pornography was measured experimentally. In none of the above studies the divergent conclusions can be attributed to the design since, in both observational and experimental studies, authors obtained contrasting results. As a consequence of the mixed results, this group of articles excluding types of pornography would not support any hypothesis about the relationship between pornography and attitudes toward sexual violence. When we consider all the studies together, the divergence of the results from the first and second clusters suggests that maybe pornography depicting violence (regardless of the type) rather than mainstream pornography in general has a negative effect on the consumers' attitudes towards sexual violence.

#### *Gender effect*

Only four of the articles included women in their samples and just three of them analyzed the results by gender. Despite that Hald and Malamuth (2015) concluded that pornography consumption affected both men and women, their research did not execute any analysis to check whether there were any significant differences between genders. Padgett et al. (1989) found no gender differences and Zillman and Bryant (1982) found that pornography led to higher acceptance of attitudes toward sexual violence for both sexes. Therefore, due to the limited number of studies that included women, the conclusion of the results regarding sexual violence is still more applicable to men, and further research is needed to know whether the same effects apply also to women.

#### *Attitudes toward violence against women Vs. Attitudes toward sexual violence*

Literature indicates that pornography use does not have an impact on attitudes toward violence against women. By contrast, the studies suggest a relationship between acceptance of sexual violence and violent pornography. The presence of violence in pornography does not appear to fully explain the difference of the effects between both constructs, because different authors (e.g., Demaré et al. 1998, Fisher & Grenier, 1994) had studied the effects of different types of pornography on attitudes toward violence against women and obtained no results. Moreover, as we mentioned before, Weisz & Earls (1995) found that just sexual violence, and not physical aggression, affected men's acceptance of rape myths. These results may indicate

that, as pornography depicts sexual acts, only attitudes specifically related to sex –and not related to aggression in general- can be affected.

### **Indirect effects of pornography on attitudes**

One of our inclusion criteria was studying the direct effects of pornography on attitudes. Therefore, we only analyzed the information of the selected articles related to those effects. However, some authors also studied indirect effects. For instance, Jansma et al. (2007) did not find direct effects of pornography on objectification, but they did when they divided their sample into sex-typed (men high on masculine and low on feminine traits) and non sex-typed men. They found that the evaluations of “partner’s intellectual competence” ( $F[3, 67] = 3.07, p = .034$ ) and “partner’s sexual interest” ( $F[3, 67] = 4.46, p = .006$ ) were significantly different between those who watched and did not watch pornography when they analyzed sex-typed and non-sex-typed men separately. Instead, when they did not divide their men sample by type, they found no significant differences. Also, Hald et al. (2013) found that exposure to pornography only increased hostile sexism in individuals scoring low in agreeableness ( $t = 1.92, df = 195; p = .03$ ). Alike, Hald and Malamuth (2015) investigated the mediating role of agreeableness on the relationship between pornography and attitudes toward sexual violence. They found that, while the relationship between pornography and “Attitudes Supporting Violence Against Women” was not significant in men scoring high/average in agreeableness, it was significant in men scoring low in agreeableness ( $t(94) = 2.68, p = .001$ ), in whom pornography increased sexual violence acceptance (Cohen’s  $d = .55$ ). Thus, it is relevant to consider that pornography may affect attitudes indirectly as well as to investigate which mediating factors might be involved.

### **Do all pornography types have effects on attitudes?**

Even though it seems that mainstream pornography does not affect sexism and attitudes toward sexual violence, the fact that violent depictions do (and degrading videos too, in the case of sexism) leads to two relevant considerations: desensitization and escalation effect. Dwulit and Rzymiski (2019) found in a university student sample that across exposure, almost half of the subjects changed to a new pornographic genre, while 32% reported the urge for more extreme material. Besides, to reach orgasm, 12% of the students needed longer stimulation and 17.6% more sexual stimuli. Similarly, Wery and Billieux (2015) found that almost half of the general population sample ( $M = 29.5, SD = 9.5, \text{range } 18\text{-}72$ ) watched pornographic content that earlier they would have considered not appealing or even disgusting.

Janssen and Bancroft (2006) also suggested that, with time, individuals exposed to bigger amounts of pornography needed to change the type of pornographic material. Furthermore, Doidge (2007) explained that the necessity of new and more extreme pornography is due to the tolerance consumers generate after being exposed to a certain type of sexual material. These findings evidence that even though individuals watch mainstream pornography, long-term exposure can provoke desensitization and the necessity to find different and more extreme content. Therefore, they may end up watching violent, or even illegal pornography, which has negative effects on their attitudes. A clear example of this is people who consume child sexual abuse material (CSAM), as not all of them watch that type of material because they have pedophilia or feel sexually attracted by minors but because they need more extreme stimuli. Merdian et al. (2013) found that 23% of their sample (individuals who committed CSAM offenses) started consuming CSAM because after long-term exposure to legal pornography, those stimuli were not exciting anymore and they followed an escalation effect. Further research should consider both pornography by category and differentiating short and long-term exposure as our findings suggest that not all types have the same impact on consumers and only long-term exposures provoke persistent effects.

In addition, the division of pornography into violent/degrading and nonviolent/non-degrading raises a question: which specific threshold might be settled to consider pornographic material as violent and degrading? What is categorized as violent at one time may not be considered so at another historic moment. For instance, in the last decades, the perception of what is hardcore and what is softcore pornography has changed, and what thirty years ago was categorized as hardcore, now it is denominated softcore (Doidge, 2007). This differentiation has relevant implications in research as, depending on the authors categorizing the material content, the amount of violent and degrading pornography will vary. To set an example, Fritz et al. (2020) in their content analysis of 4009 pornographic scenes found that physical aggression was present in 45% (Pornhub) and 35% (Xvideos) of the videos. They considered physical aggression acts like slapping, gagging, pulling hair, choking, and bondage. Yet, pulling the women would be unanimously considered physical aggression or it would also find researchers categorizing it as a personal taste? Doing gagging might be considered a sadomasochist practice rather than violent. For this reason, we consider it essential that further research was extremely detailed about the stimuli to which the subjects are exposed, in order to make future comparisons and analysis as objective as possible.

### **Pornography, attitudes, and behaviors**

So far, the research analyzed in the present study investigated the relationship between pornography and attitudes toward women and sexual aggression. However, there is also research studying the potential effects of pornography on behaviors. Wright et al. (2016) conducted a meta-analysis of 22 studies from 7 different countries analyzing the relationship between pornography consumption and sexual aggression in the general population. They found that exposure to pornography was associated with verbal and physical sexual aggression and that the relationship was bigger when pornography was violent. Other authors have also studied the same association in people who committed sexual aggressions, finding significant relationships (e.g., Burton et al., 2010; Cramer & McFarlane, 1994, Zgourides et al., 1997). Once we analyzed our selected articles reaching the conclusion that pornography affects attitudes, we need to think about the possible relationship between attitudes and behaviors. This is particularly important as we have found that violent pornography may be related to the acceptance of sexual violence, and other authors have found relations between pornography and sexual aggression. Could the attitudes that were acquired watching pornography be the first step toward actual acts of sexual violence? After all, studies show that a large proportion of people who sexually assault have sex-related cognitive distortions (Stermac & Segal, 1989; Ward et al., 2016). Bohner et al. (2005) found that men's rape myth acceptance, namely, acceptance of sexual violence, was correlated with rape proclivity, Marx et al. (1999) found that subjects with coercive history had higher scores on the Rape Myth Acceptance Scale (Burt, 1980), and Malamuth (1981), in a literature review, found that acceptance of rape myths was very prevalent in men who had raped women. The above findings about the importance of our results as it appears that attitudes associated with pornography consumption may have a role in sexual aggressions, and therefore, the impact of pornography on society would be even more needed of attention.

### **Gender considerations**

The possible gender effect of pornography is not clear-cut. While some of the analyzed articles that studied gender differences did not find any gender effect (Padget et al., 1989; Peter & Valkenburg, 2009; Wright & Funk, 2014), other authors concluded that exposure affects more negatively men than women (Garos et al., 2004; Hald, 2013; Weisz & Earls, 1995; Zillman & Bryant, 1982). Thus, there is not enough empirical evidence to conclude whether pornography affects men and women similarly.



Besides, the sample was very restrictive in gender: 68% of the studied samples were composed only by men, which means that women were underrepresented. However, it is true that men are the predominant pornography consumers (Hald, 2006; Sanjuán, 2020; Wright & Bae, 2015), with three times more pornography consumption than women (68.68%, and 24% respectively, Emmers-Sommer et al., 2013). Thus, the systematic review sample is representative of pornography consumers, as it is in accordance with the percentages provided by Emmers-sommer et al. (2013). However, although most pornography consumers are men, women's pornography consumption has increased over the years. While in 2014 women accounted for 23% of Pornhub visitors (Pornhub, 2015), in 2019 the percentage was 32% (Pornhub, 2019), namely, a 9% increase in 6 years. This trend demonstrates the importance of studying the effects of pornography on women in the future, as women will comprise a considerable percentage of pornography consumers and, despite the analyzed samples are currently representative, perhaps they will not be in the near future.

Multiple pornography genres contain violent, physically harmful, and degrading depictions, as they can be the acts of cock gagging (fellatio where the person ends up gagging or vomiting), double anal, facial cum shot, bukkake (multiple individuals ejaculate on another person), pissing/golden shower (urinating on another person), defecation (defecating on another person) or bondage (one of the individuals is bound). Bridges et al. (2010) analyzed the content of 304 pornographic scenes and found that, while 70.3% of the aggression perpetrators were men, 94.4% of the target agent were women. Thus, most of the active agents are men, and almost all of the victims are women. Besides, adolescents do consume violent pornographic material (Romito & Beltramini, 2011, i.e., violence against women, sadomasochism), and Ševčíková and Daneback (2014) and Sanjuán (2020) found that minors use pornography to learn about sex (33% and 40% respectively). All these results demonstrate the value of studying women samples and the need to study how pornography may affect girls' and women's own perception in sexual relations (i.e., sexual passive role, inferior, subordinated to men) as well as the likelihood of agreeing to engage in sexual acts similar to those watched despite the physical pain or the degradation they may feel. It could be possible that each gender watches pornographic material differently and that, due to the passive role attributed to women in Western culture pornography, women spectators will end up interpreting their role as victims and not as potentially active agents. Related to this idea, authors have studied the pornography effects on victimization. We had already seen that pornography consumption in men seems to be related to actual acts of sexual aggression or the likelihood to commit them (Burton et al., 2010; Cramer & McFarlane, 1994; Wright et al., 2016; Zgourides et al., 1997). Instead, in

women, pornography exposure appears to be associated with sexual victimization (de Heer et al., 2020; Romito & Beltramini, 2011). In addition, Sanjuán (2020) found that the main motivation to conduct sexual acts in 5.4% of the adolescent girls was to satisfy their sexual partners. Thus, it is possible that women also acquired negative attitudes toward themselves as women and consequently adopt a passive and submissive role in their sexual relations.

### **Prevention measures**

Given the effects of pornography on attitudes toward women and sexual violence, we consider that our findings support the importance of prevention measures, such as sexual education for minors. Moreover, the age stage when they received those programs seems crucial. Sanjuán (2020) found that 53.8% of the adolescents in her sample were aged between six and 12 years old when they watched pornography for the first time. In Spain, for instance, most sex education programs are taught to adolescents (Sanjuán, 2020). Programs starting during high school would imply that approximately half of the students have their first contact with pornography before receiving sex education. Yet, it would be more beneficial to start sexual education at previous stages, such as primary education. Despite the possible barriers and difficulties it may have to implement these programs at earlier stages, some schools worldwide, such as in Australia, have already done it, and authors are analyzing them in order to improve their quality and the way to get students' intrinsic attention (Goldman, 2011; Johnson et al., 2014).

### **Limitations**

The results of this systematic review cannot be generalized. They primarily apply to WEIRD people (Henrich et al., 2020, Western, Educated, Industrialized, Rich, and Democratic), as 81% of the studies were conducted in North America, especially in the United States, which accounted for 71% of the research. In contrast, just 13% were carried out in Europe, 3% in the Pacific, and 3% simultaneously in more than one continent (Pacific, North America, Asia). In addition, most of the studies were conducted with young adults (64% of the samples were university students and 6% general young adults). The other 30% of the samples consisted of general population over 18 (18%, no distinction between young adults and adults) and adolescents (12%). Hence, the findings are limited to a specific population: young North American male adults. As a consequence, in order to know whether the results of the systematic review can be generalized to the general population, future studies should investigate the effects of pornography on other population groups.

## Conclusion

In conclusion, the literature suggests that pornography does affect most of the constructs we analyzed and that, therefore, it has a negative effect on attitudes toward women and sexual violence. Regarding sexism, the mixed results are not conclusive. However, they suggest that it is not mainstream but degrading pornography which leads to sexist attitudes. In addition, future research should study separately hostile and benevolent sexism as they measure two different constructs. The clearest relationship found has been the one between pornography consumption and objectification, where, for men, higher exposure to pornography leads to higher objectification of women. It was the only construct related to pornography regardless of its type. It is unclear whether this happens because objectification may be an intrinsic attribute of pornography, while the other constructs may not. For instance, not all pornography types depict sexual violence, thus, probably only the one containing it will affect attitudes toward sexual violence. Instead, if women are depicted as sex objects independently of the category, most of the pornographic will affect the objectification attitudes. Concerning the third construct studied in the systematic review, attitudes toward sexual violence, the studies do suggest that exposure to violent pornography increases the acceptance of sexual violence for men. In contrast, the literature does not show any relationship between pornography consumption and the acceptance of attitudes toward violence against women. These findings evidence the necessity of studying the effects of different types of pornography. Also the importance of teaching sex education programs in primary education and high schools, in order to avoid the use of pornography as a substitute for it, and protect them from the negative effects that pornographic material may have on their identity building. In addition, the results are relevant as attitudes seem to be the first step towards future acts of sexual aggression. Lastly, we also consider it interesting to study the effects of pornography on women, as it may affect them in how they understand their sexual role, or in the acquisition of attitudes that may increase their odds of sexual victimization. Therefore, we encourage researchers to adopt a gender perspective in future investigations. Overall, the findings of the systematic review shed light on the debate about the pornography effects. Nevertheless, the existence of non-conclusive results demonstrates the importance of future research to obtain a better knowledge of pornography effects.

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## Appendix A

Table A1

*Equations used for the database searching*

Database	N	Research equation
PubMed	244	((("porn*" [Title] OR "Erotica" [MeSH Terms]) AND ("Sex Offenses" [MeSH Terms] OR "Intimate Partner Violence" [MeSH Terms] OR "Gender-Based Violence" [MeSH Terms] OR ("Sex" [All Fields] OR "sexual" [All Fields] OR "dating" [All Fields] OR "partner" [All Fields]) AND ("abuse" [All Fields] OR "violence" [All Fields] OR "violences" [All Fields] OR "abuses" [All Fields] OR "offense" [All Fields])) OR "Sexism" [MeSH Terms] OR "Sexism" [All Fields] OR ("Women" [All Fields] OR "Women" [MeSH Terms]) AND ("Attitude" [All Fields] OR "Attitude" [MeSH Terms]))) NOT ("Child Abuse" [MeSH Terms] OR "Child" [MeSH Terms]) NOT ("Review" [Publication Type] OR "Review Literature as Topic" [MeSH Terms])
PsycInfo	551	(MM "Pornography" OR TI "Porn*") AND (DE "Sexism" OR DE "Sex Role Attitudes" OR (DE "Stereotyped Attitudes" OR DE "Sex Offenses" OR DE "Sexual Abuse") OR (("Sex" OR "sexual" OR "dating" OR "partner") AND ("abuse" OR "violence" OR "violences" OR "abuses" OR "offense"))) OR "Sexism") NOT (DE "Literature Review" OR DE "Pedophilia")
Cochrane	47	([mh "Erotica"] OR ((Porn*):ti)) AND ([mh "Sex Offenses"] OR [mh "Intimate Partner Violence"] OR [mh "Gender-Based Violence"] OR (("Sex" OR "sexual" OR "dating" OR "partner") AND ("abuse" OR "violence" OR "violences" OR "abuses" OR "offense"))) OR [mh "Sexism"] OR "Sexism" OR ("Women" OR [mh "Women"] OR "Attitude" OR [mh "Attitude"])) NOT ([mh "Child Abuse"] OR [mh "Child"])
P&BSC	64	(DE "PORNOGRAPHY" OR DE "EROTICA" OR "Porn*") AND (DE "SEX crimes" OR DE "INTIMATE partner violence" OR DE "DOMESTIC violence" OR DE "SEX discrimination" OR ("Sex" OR "sexual" OR "dating" OR "partner") AND ("Abuse" OR "violence" OR "violences" OR "Abuses" OR "offense" OR DE "SEXISM" OR "sexism" OR "women" OR DE "WOMEN") AND "attitude") NOT (DE "CHILD sexual abuse" OR DE "PEDOPHILIA")
WOS	121	"Pornography" AND Effect\$ AND ("Violence" OR ("Attitude\$ Toward Women" OR "Attitudes Against Women") OR "Sexism")

## Appendix B

### Internal validity

We coded the constructs, the study design (experimental/observational) and type (randomized/quasi-experimental; retrospective/prospective), sample size, and independent and dependent variables.

**Table B1**

*Internal validity of the articles included in the present systematic review*

Article	Constructs	Design	Type	N	VI-Application	VD-Measurement
Zillman and Bryant (1982)	SE; ATSV	EX	RA	160	Condition 1, 2 and 3: Six 8' videos in each of the 6 sessions (massive exposure condition: 6 erotic videos; Intermediate exposure condition: 3 erotic and 3 non-erotic videos; No exposure condition: 6 non-erotic videos). Condition 4: no exposure to any video	Disposition toward rape*; Support for the women's liberation movement*; Sexual callousness toward women*
García (1986)	SE; ATSV	OB	RE	115	Exposure to sexual materials by type of media (frequency)	Attitudes toward Women Scale (Spence & Helmreich, 1972, as cited in García, 1986); Attitudes Toward Rape (ATR) (Feild, 1978).  Rape Myth Acceptance (RMA) (Burt, 1980); Acceptance of Interpersonal Violence (AIV) (Burt, 1980); Adversarial Sexual Beliefs (ASB) (Burt, 1980); Attitudes toward Women Scale (AWS) (short form of Spence & Helmreich, 1978, as cited in Demaré et al., 1988).
Demaré et al. (1988)	SE; ATSV; ATVAW	OB	RE	205	Pornography use (frequency and type during the last year)	

Linz et al. (1988)	ATSV; OB	EX	RA	156	Experimental condition: 2 or 5 videos (a. R-rated violent movies b. R-rated nonviolent (teenage sex) movies c. X-rated nonviolent movies.) Control condition: no video	Rape Empathy Scale (RES) (Deitz et al., 1982); Rape Myth Acceptance (Burt, 1980); Belief in conservative sex roles*; Endorsement of force in sexual relations*; Tendency to view women as sexual objects*; Questionnaire* (Victim sympathy; Victim Injury; Degree to which the victim resisted her assailant; Defendant responsibility for the assault; Victim responsibility for her own assault; Probability of guilt; Verdict; Sentence assigned to the defendant if guilty).
Linz et al. (1989)	ATSV	EX	RA	63	Different videos for 90' (a. Violent sexual scenes against a woman b. R-Rated, nonviolent, nonsexual, exciting scenes)	Dependent Measure Questionnaire* (male responsibility for the assault, victim responsibility, perception of violence, self-reported psychological reactions, victim injury, victim sympathy, victim attractiveness).
		OB	RE	118	Pornography use (hours per month)	
Padgett et al. (1989)	SE; ATSV; ATVAW	OB	RE	21	Pornography use (hours per month)	Questionnaire with 5-6 items from each of the following scales: Attitudes toward Women Scale (Spence & Helmreich, 1978, as cited in Padgett et al., 1989); Sex Role Stereotyping (Burt, 1980); Adversarial Sexual Beliefs (Burt, 1980); Rape Myth Acceptance (Burt 1980); Acceptance of Interpersonal Violence (Burt, 1980); Sexual conservatism (Burt, 1980).
		EX	RA	66	Five videos 50'/40' (a. Erotic b. Non-erotic)	
Demaré et al. (1993)	SE; ATSV; ATVAW	OB	RE	383	Pornography use (frequency and type during the last year)	Rape Myth Acceptance (Burt, 1980); Acceptance of Interpersonal Violence (Burt, 1980); Attitudes

						toward Women Scale (Spence & Helmreich, 1978, as cited in Demaré et al., 1993).
Fisher and Grenier (1994)	SE; ATSV; ATVAW	EX	RA	59	Video (a. Violent man-woman sexual interaction which ended with an ostensibly positive outcome for the woman victim b. With a negative outcome c. Nonviolent man-woman sexual interaction d. Neutral)	Attitudes towards Women Scale (Spence & Helmreich, 1972, as cited in Fisher and Grenier, 1994); Women As Managers Scale (WAMS) (Peters et al., 1974, as cited in Fisher and Grenier, 1994); Acceptance of Interpersonal Violence (Burt, 1980); Rape Myth Acceptance (Burt, 1980).
Weisz and Earls (1995)	ATSV; ATVAW	EX	RA	193	Video (a. Sexual aggression against a man b. Sexual aggression against woman c. Physical aggression d. Neutral) + Rape trial video	Acceptance of Interpersonal Violence (Burt, 1980); Rape Myth Acceptance (Burt, 1980); Rape trial questionnaire (Linz et al., 1988).
Davies (1997)	SE; ATSV	OB	RE	194	Number of X-rated videos rented during 1988	Support for the Equal Rights Amendment*; Support for the law against marital rape*; Opinion on punishment for marital and date rape*.
Jansma et al. (1997)	OB	EX	RA	71	Video (a. Explicit/degrading b. Explicit/Non-degrading c. Non-explicit)	Sexual attractiveness*; Intellectual competence*; Sexual interest*; Sexual permissiveness*.
Bauserman (1998)	SE; ATVAW	EX	RA	122	Video approx.. 15' (a. Sexually aggressive b. Sexist c. Egalitarian d. Control)	Rape Myth Acceptance (Burt, 1980); Adversarial Sexual Beliefs (Burt, 1980); Sex Role Egalitarianism Scale (SRES) (Beere et al., 1984).
Barak et al. (1999)	SE; ATSV	EX	RA	24	Subjects surfed privately and freely the Internet for 90' with no limitations regarding the sites they could visit, except for the fourth condition (control) where pornography sites were blocked and,	Rape Myth Acceptance (Burt, 1980); Attitudes toward Women Scale (AWS) (Spence et al., 1973); Women As Managers Scale (Peters et al., 1974, as cited in Barak et al., 1999).

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					therefore, they could not access them. In each condition there was a bookmark list with different amounts of pornographic sites on it. (condition 1 10%; condition 2 50%; condition 3 80%; condition 4 0%)	
	SE; ATSV	EX	RA	31	Subjects surfed privately and freely the Internet for 90' with no limitations regarding the sites they could visit. In each condition there was a bookmark list with different amounts of pornographic sites on it. (condition 1 10%; condition 2 33%; condition 3 50%; condition 4 0%); Sex Materials Exposure Survey (SMES) <sup>2</sup> (Bogaert, 1993)	Rape Myth Acceptance (Burt, 1980); Attitudes toward Women Scale (Spence et al., 1973); Women As Managers Scale (Peters et al., 1974, as cited in Barak et al., 1999).
Golde et al. (2000)	SE; ATSV	EX	RA	83	Video 15' (a. Explicit/Degrading b. Explicit/Non-degrading c. Nonexplicit/Degrading d. Non-explicit/Non-degrading)	Rape Supportive Attitude Scale (RSAS) (Lottes, 1988, as cited in Golde et al., 2000); Attitudes toward Women Scale (Spence et al., 1973); Hypermasculinity Inventory (Mosher & Sirking, 1984) which includes a 15-item Sex Callousness Scale (SCA).
Garos et al. (2004)	SE	OB	RE	131	Exposure to Sexual Materials Questionnaire (Frable et al., 1997)	Old-Fashioned Sexism Scale (OFS) (Swim et al., 1995); Modern Sexism Scale (MS) (Swim et al., 1995); Attitudes toward Women Scale (Spence & Helmreich, 1972, as cited in Garos et al., 2004).

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<sup>2</sup> Despite it was an experimental study, it also measured past pornography consumption and analyzed the relationship it had with attitudes toward sexual violence.

	SE			144	Exposure to Sexual Materials Questionnaire (ESMQ) (Frable et al., 1997)	Ambivalent Sexism Inventory (ASI) (Glick & Fiske, 1996).
McKee (2007)	SE	OB	RE	1023	Use of and thoughts about pornography (frequency and hours per week)	Attitudes toward women*.
Peter and Valkenburg (2009)	OB	OB	PR	1052	Exposure to Sexual Explicit Internet Material (SEIM) (Peter & Valkenburg, 2006)	Notions of Women as Sex Objects (Peter & Valkenburg, 2007).
Foubert et al. (2011)	ATSV	OB	RE	489	Types of pornography used during the last year	Illinois Rape Myth Acceptance Scale (IRMA) (Payne et al., 1999).
Hald et al. (2013)	SE	EX	RA	200	Video 39 approx. 30' (a. Pornographic b. Neutral); Pornography Consumption Questionnaire (PCQ) (Hald, 2006) <sup>3</sup>	Ambivalent Sexism Inventory (Glick & Fiske, 1996); Attitudes toward Women Scale (Danish version of Spence & Helmreich, 1972, as cited in Hald et al., 2013).
Wright and Funk (2014)	SE	OB	PR	190	Pornography viewing (have watched a pornographic movie or not in the prior year)	Opposition to affirmative action*.
Hald and Malamuth (2015)	ATSV	EX	RA	201	Videos 25' (a. Hardcore pornographic b. Emotionally neutral); Pornography Consumption Questionnaire (Hald, 2006) <sup>4</sup>	Attitudes Supporting Violence Against Women (3 items from Acceptance of Interpersonal Violence (Burt, 1980) and 12 items from Rape Myth Acceptance (Burt, 1980)).

<sup>3</sup> Despite it was an experimental study, it also measured past pornography consumption and analyzed the relationship it had with attitudes toward women and sexism.

<sup>4</sup> Despite it was an experimental study, it also measured past pornography consumption and analyzed the relationship it had with attitudes toward sexual violence.

Wright and Bae (2015)	SE	OB	PR	425	Pornography viewing (have watched a pornographic movie or not in the prior year)	Gender-Role Attitudes*.
Stanley et al. (2016)	SE	OB	RE	1726	Pornography use (watch regularly online pornography or not)	Attitudes to gender equality*.
Wright and Tokunaga (2016)	ATVAW; OB	OB	RE	187	Pornography exposure (frequency in the prior year)	Notions of Women as Sex Objects ( 4 items from Peter & Valkenburg, 2007); Attitudes Supportive of Violence Against Women (5 items from Burt, 1980).
Skorska et al. (2018)	SE; OB	EX	RA	82	Video/s (a. Degrading b. Erotica c. Control)	Mental State Attribution Task (MSAT) (one item from (Loughnan et al., 2010); Sense of mind* item; Essentialist Beliefs about Women Scale*; Ambivalent Sexism Inventory (Glick & Fiske, 1996).
Rostad et al. (2019)	SE; ATSV	OB	RE	1694	Violent Pornography Exposure (3 items from the Social Norms Measure (Boeringer et al., 1991))	Illinois Rape Myth Acceptance Scale (Payne et al., 1999); Gender Equitable Norms Scale (12 items modified from Pulerwitz & Barker, 2008).
Kohut (2020)	SE	OB	PR	S1= 936 S2= 743	Pornography use (frequency in the past 6 months)	Hostility Towards Women Scale (modified version of Lonsway & Fitzgerald, 1995).
Miller et al. (2020)	SE	OB	RE	323	Pornography use (frequency, average viewing session length, if subjects regularly watch violent or humiliating pornography or not)	Old-Fashioned Sexism Scale (Swim & Cohen, 1995); Modern Sexism Scale (Swim & Cohen, 1995).



Marshall et al. (2021) <sup>5</sup>	ATSV	EX	RA	463	Pornography use*	Rape Myth Scale (Lonsway & Fitzgeralds, 1995); Victim willing*; Victim pleasure*.
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\* Ad hoc questionnaire

ATVAW, attitudes toward violence against women; ATSV, attitudes toward sexual violence; OB, objectification; SE, sexism.

EX, experimental; OB, observational.

RA, randomized; RE, retrospective; PR, prospective.

### External validity

We coded the men proportion, mean age (standard deviation), minimum age, maximum age, population type, sexual orientation, education level, country, and other sociodemographic variables of interest (ethnicity, religiosity, political orientation, relationship status).

### Table B2

*External validity of the articles included in the present systematic review*

Article	Men %	Mean age (SD)	Min. Age	Max. Age	Population	Sexual orientation	Education level	Country	Other
Zillman and Bryant (1982)	50%	-	-	-	University students (undergraduate)	-	University studies	United States	-

<sup>5</sup> Despite it was an experimental study, the information of interest for the systematic review was just the one obtained by the pornography use questionnaire. In the study, the Rape Myth Acceptance Scale (Lonsway & Fitzgeralds, 1995) was used as a control variable, victim willing and victim pleasure as mediating variables, and pornography use was not classified.

García (1986)	100%	20.72	18	38	University students	-	University studies	United States	-
Demaré et al. (1988)	100%	-	-	-	University students (undergraduate)	-	University studies	-	-
Linz et al. (1988)	100%	-	-	-	University students	-	University studies	United States	-
Linz et al. (1989)	100%	-	-	-	University students (undergraduate)	-	University studies	United States	-
	33%	-	-	-	University students	-	University studies	United States	-
Padgett et al. (1989)	95%	39.1 (12.86)	19	61	Patrons of an “adult” movie theater	-	-	United States	-
	41%	19.14 (2.56)	18	34	University students	-	University studies	United States	Single (97%)
Demaré et al. (1993)	100%	-	-	-	University students (undergraduate)	-	University studies	-	-
Fisher and Grenier (1994)	100%	-	-	-	University students (undergraduate)	-	University studies	Canada	-
Weisz and Earls (1995)	45%	M=20 (2.5) F=19 (2.9)	18	M=42 F=32	University students	-	University studies	Canada	-

Davies (1997)	100%	-	-	-	People who rented X-rated videos during 1988	-	-	United States	-
Jansma et al. (1997)	100%	-	-	-	University students	-	University studies	United States	-
Bauserman (1998)	100%	19.2	-	-	University students (undergraduate)	-	University studies	United States	Ethnicity Caucasian (88%); African American (8%); Asian American (4%)
Barak et al. (1999)	100%	-	-	-	University students (undergraduate)	-	University studies	United States	-
	100%	-	-	-	University students (undergraduate)	-	University studies	United States	-
Golde et al. (2000)	100%	-	-	-	University students	-	University studies	United States	-
Garos et al. (2004)	69%	19.16 (2.72)	18	45	University students	Heterosexual	University studies	United States	Ethnicity: Caucasian (82.0%); African American (6.5%); Hispanic (5.8%); Asian (4.3%); Other (1.4% ) Single (96%) Religious affiliation: Judeo-Christian (85,6%)
	34%	18.56 (1.14)	18	24	University students	Heterosexual 98%	University studies	United States	Ethnicity: Caucasian (76.4%); African American (4.3%);

McKee (2007)	82%	-	-	-	General population	-	Still studying (12.6%); Primary (1.3%); Secondary (27.1%); Tertiary (42.8%); Postgraduate (16.0%)	Australia	Hispanic (11.4%); Asian (3.6%); Other (4.3%) Single (96%) Religious affiliation: Judeo-Christian (74.3%) Voting intentions: Right wing (26.9%); Left wing (44.7%); Centrist (9.2%); Other (14.8%) Religious affiliation: (57.9%): Catholic (15.1%); Anglican (10.4%); Protestant (4.3%); Methodist (1.6%); Other Christian (6.7%); Buddhist (2.9%); Atheist (31.5%); Muslim (.3%); Other (16.6%); No position on religion (8.6%)
Peter & Valkenburg (2009)	-	16.78 (2.26)	13	20	Adolescents (including postadolescents)	-	-	The Netherlands	-
Foubert et al. (2011)	100%	20.3 (1.3)	18	23	Members of fraternities at a public university	-	University studies	United States	-
Hald et al. (2013)	50%	M=24.64 (3.76)	18	30	Young Danish adults	Heterosexual	-	Denmark	-

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		F=24.3 9 (3.72)								
Wright and Funk (2014)	42%	44.5 (15.17)	19	88	General population over 18	-	Completed years=14.39 (SD = 3.32) (Range = 2-20)	United States	Political orientation (1 extremely liberal-7 extremely conservative) M=4.02, SD=1.38 Religiosity (frequency of attendance at religious services 0-8) M=3.72, SD=2.88 Ethnicity: White (74.9%); Black (9.7%); Other (15.4%)	
Hald and Malamuth (2015)	49.7 %	M=24.6 4 (3.76) F=24.3 9 (3.72)	18	30	General population of young adults	-	-	United States	-	
Wright and Bae (2015)	50.3	M=44.3 9 (SD=15.75)	18	89	General population over 18	-	Number of years completed=13.73 (SD = 2.65)	United States	Political orientation (1 extremely liberal-7 extremely conservative) M=4.12, SD=1.37 Religiosity (frequency of attendance at religious services 0-8) M=3.34, SD=2.69 Ethnicity: White (80.8%); Ethnic minorities (9.2%)	

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Stanley et al. (2016)	100%	-	-	-	High school teenagers who had been in a relationship	96% opposite-sex partner 4% same-sex partner	High school	Bulgaria; Cyprus; England; Italy; Norway	-
Wright and Tokunaga (2016)	100%	20.86 (2.08)	18	33	University Students (undergraduate courses)	Heterosexual (sexually attracted to women)	University studies	United States	Religion: Christian (56.68%); Jewish (16.04%); Muslim (3.21%); Buddhist (0.53%); Alternate religion (3.21%); Any religion (20.32) Ethnicity: White (78.07%); Hispanic (7.49%); Asian (7.49%); Middle Eastern (3.21%); Black (3.21%); Other (0.53%)
Skorska et al. (2018)	100%	20.51 (2.53)	18	31	University students (undergraduate)	Heterosexual	University studies	Canada	Single (52%)
Rostad et al. (2019)	45%	15.41 (.59)	-	-	High school students (10 <sup>th</sup> grade) who had a dating partner the past year	-	High school	United States	-
Kohut (2020)	100%	Sample 1=16.2 (0.55)	-	-	High school students	-	High school	Croatia	Religious service attendance (less than once a month (M1=65.71%;

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		Sample 2=15.8 9 (0.54)							M2=76.78); Once a month or more (M1=34.29%; M2=23.22%)
Miller et al. (2020)	100%	27.97 (11.26)	-	-	45.2% students y 54.8% non-students	Heterosexual	-	Pacific (Australia, New Zealand) 41.8%, the US 26.9%, Asia 19.5%	Single (46.2%) Religiosity: M=3.30 (SD = 2.46) (1-9 scale)
Marshall et al. (2021)	100%	21.74 (4.83)	18	69	University Students (undergraduate classes)	Heterosexual	University studies	United States	Ethnicity: White (67.9%); Hispanic (16.1%); African American (16.0%)

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