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Association between exposure to pornography involving physical violence and risky sexual behaviors in young adults

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Abstract

Background Exposure to pornography shapes the acquisition of sexual scripts that are activated in a sexual relationship. These scripts are considered risky for sexual violence if they include impersonal sexual relationships, alcohol/drug use, and communication difficulties. The aim of this study is to analyze the association between the type of pornography consumed—classified by the level of violent content—and sexual behaviors linked to risky sexual scripts in young adult women and men in Spain.

Methods Cross-sectional study of a survey conducted online with a sample of 18–34 year olds living in Spain ($n = 3607$). Dependent variables: number of casual partners; frequency of sexual practices under the influence of alcohol/drugs; frequency of acceptance/rejection of unwanted/desired sexual practices. Main independent variable: type of pornography consumed (none; no explicit violence; domination/humiliation; physical violence). Covariates: sociodemographic variables, sexual orientation, sexual partners, and frequency of consumption, Marlowe–Crowne Scale. Analysis: (a) Descriptive; (b) Analytical: generalized linear model for ordinal dependent variables (gologit2). The analyses were performed on the total sample and on the sample of consumers. All analyses were stratified by sex.

Results In the last 12 months, 18.8% of sexually active women and 31.8% of sexually active men have had casual partners. 49.1% of women and 53.9% of men consumed alcohol or other drugs before or during sexual practices. 44.9% of women and 40.5% of men accepted unwanted sexual practices. In both sexes (referring to people who do not consume pornography), an association was identified between the consumption of pornography involving depictions of physical violence and a higher likelihood of having a higher number of casual partners (OR_women: 2.37; OR_men: 1.90), of consuming alcohol and/or other drugs before or during sexual practices (OR_women: 1.93; OR_men: 1.93) and, in women, of accepting unwanted sexual practices (OR_women: 1.30).

Conclusion In both sexes, an association was identified between the consumption of pornography involving physical violence and sexual behaviors associated with risky sexual scripts. These findings, although the cross-sectional nature of the design does not allow for establishing causal relationships, underscore the need to implement policies that control access to pornography and promote a critical stance toward this practice.

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Keywords Pornography, Risky sexual scripts, Risky sexual behaviors, Sexual relationships, Sexual violence, Young adults

Background

Sexual Script Theory, proposed by Gagnon and Simon in 1973 [1], explains how individuals learn patterns of sexual behavior and expectations through cultural, interpersonal, and intrapersonal influences. According to this theory, cultural scripts shape societal norms, interpersonal scripts guide interactions, and intrapersonal scripts reflect personal beliefs and desires. This theory has been applied to explain sexual coercion by highlighting how traditional gender role scripts contribute to the development of narratives that normalize sexually coercive behavior, known as “rape scripts” [2]. These scripts, shaped by cultural and social influences, reinforce the expectation that men should persist in pursuing sex while women should display playful resistance [2–4].

Risky sexual scripts are cognitive frameworks that are associated to behaviors and attitudes that increase the likelihood of sexual aggression, victimization, and perpetration. These scripts have previously been associated with alcohol use before and during sexual relationships, engaging in impersonal sex and the ambiguous communication of sexual intentions, among others [5]. The “risky” attribute arises from their emphasis on impersonal sexual relationships, which minimize the importance of clear communication about consent and contribute to the acceptance of sexual coercion [6].

Previous studies indicate that behaviors associated with risky sexual patterns, such as having multiple sexual partners, consuming drugs and/or alcohol during sexual relationships or experiencing no consented sexual relationships, are prevalent among young populations [7, 8]. It’s noteworthy that these behaviors have been associated with early sexual initiation, inconsistent condom use, higher risk of sexually transmitted infections, and sexual aggression perpetration and victimization [8, 9].

Risky health scripts among young populations may be influenced by exposure to pornography, as it contributes to and reinforces cultural norms that downplay the importance of clear communication and mutual respect in sexual relationships [10]. Since sexual scripts are shaped by various sociocultural influences, and given the rise of online pornography, this type of content has become a significant factor in their formation [11]. The rapid expansion of the Internet has dramatically increased the availability, anonymity, and affordability of pornography, making access easier to the general public [12, 13]. As a result, online pornography use is highly prevalent, with studies showing that 80–90% of

men (especially those aged 18–29) and 30–50% of young women worldwide consume it regularly [14–16].

Studies on the consumption of pornography and its influence on risky sexual scripts face several limitations, such as the need for evidence based on larger samples from diverse contexts that consider the type of content viewed in pornography [17, 18]. Although the results are inconclusive, systematic reviews, meta-analyses, and longitudinal studies show that the association between viewing pornography and sexual violence is stronger when individuals are exposed to violent pornography [17, 19]. Studies conducted to date have not thoroughly analyzed the violence present in pornography in relation to its possible association with risky sexual behaviors [20]. This lack of specificity can hinder the generalization of results.

In Spain, while educational laws, such as Organic Law 3/2020, 29 December [21], promote affective-sexual education, they do not guarantee universal access to it. Recent research in Spain suggests that pornography and the Internet serve as substitutes for affective-sexual education [22], which can significantly shape their sexual scripts and practices. The lack of comprehensive sexual education, combined with the increasing consumption of pornography and rising sexual violence among young people, has fueled a growing societal demand to formally integrate these topics into the curriculum. On one hand, first exposure to pornography occurs between the ages of 9 and 11, with regular consumption beginning at 14 for boys and 16 for girls [22, 23]. A recent study found that 97.3% of 16-year-old boys and 78.3% of 16-year-old girls have already actively searched for pornography online [24]. On the other hand, according to the 2021 report from the *Fiscalía General del Estado* (State Attorney General) [25], sexual offenses committed by minors increased by 58% in one year, with 97.5% of offenders being male. These alarming statistics highlight the need for a deeper understanding of the links between pornography consumption and behaviors associated with risky sexual scripts for assessing its impact on sexual health and relationships. To the best of our knowledge, we currently do not know whether the potential association between pornography use and behaviors associated with risky sexual scripts varies depending on the pornographic content to which women and men are exposed. The aim of this study is to analyze the association between the type of pornography consumed—classified by the level of violent content—and sexual behaviors linked to risky sexual scripts in young adult women and men in Spain.

Methods

Sample and participants

Cross-sectional study of the survey “Pornography and Sexual Violence in Young Adults” (see Supplementary Material) conducted online with a sample of 3,607 women and men aged 18–35. The sample size was calculated based on a prevalence of pornography consumption in the last 12 months in this age range of 75% [26]. For an expected odds ratio (OR) of 1.5, a confidence level of 95%, and a power of 80%, a minimum sample size of 3,564 questionnaires was estimated, with a relative precision of 25.4%.

The sample was obtained from the Netquest panel (netquest.com), which includes a total of 19,000 people in this age group. This panel complies with the ISO 26362:2009 quality standard for the management of research panels [27]. A quota sample was designed taking into account the distribution of the Spanish population in this age group for the variables of sex, age, and region of residence. Given the difficulties in meeting the age quota, the sample was weighted by this variable. The people panelists are volunteers who have expressed their willingness to respond to surveys on topics of social interest. First, an email was sent to people asking them if they would be available to respond to a survey. Those who responded affirmatively were sent a link to respond.

The data was collected between July 6 and August 8, 2023. First, 438 records were collected, which constituted a pilot sample. The study was then continued until 3,607 records were completed.

The questionnaire took an average of 15 min to complete. A total of 9,125 people were invited to participate, 5,235 of whom responded indicating their willingness to take part in the survey. Of the total number of people who accepted, 1,221 were excluded because they did not meet the sample quotas at the time of response. Of the 4,014 people who started the questionnaire, a sample of 3,607 records (89.9%) was obtained.

Participants did not receive any financial compensation for their participation, although they were compensated through a system of points that could be exchanged for items.

The study was approved by the Ethics Committee of the Institute of Health Carlos III (Ref: CEI PI 04_2023-v3).

Variables

Dependent variables: risky sexual behavior

The variables used to measure sexual behavior are an adaptation of items previously used to assess the descriptive component of risky sexual scripts.

[28, 29]. These items include the three behaviors associated with risky sexual scripts: impersonal sex, alcohol and other drug use before or during a sexual practice, and communication difficulties [5, 6, 30].

- Number of casual partners in the last 12 months. Continuous variable, categorized for analysis as none; 1–2 partners; 3–5 partners; 6 or more partners.
- How often did you consume alcohol or drugs before/during a sexual practice? Never/Very rarely/Sometimes/Almost always/Always.
- How often did your partner consume alcohol or drugs before/during a sexual practice? Never/Very rarely/Sometimes/Almost always/Always.
- How often did you say “no” to a sexual proposition when you really meant “yes”? Never/Very rarely/Sometimes/Almost always/Always.
- How often did you say “yes” to a sexual proposition when you really meant “no”? Never/Very rarely/Sometimes/Almost always/Always.
- Have you had group sex in the last 12 months? Yes/No.

Sexual practices were defined as behaviors performed by at least two people to give and/or receive sexual pleasure, regardless of the practice and whether or not penetration occurred.

The response categories “almost always” and “always” were recategorized into a single category, as their sample size did not allow for independent analysis.

Main independent variable: pornography use

Information on pornography use was collected using an ad hoc instrument that classified the pornography consumed according to the violence contained in the practices. Online pornography was defined as “viewing sexually explicit audiovisual material (photos, videos, short films, movies) via the Internet (computer, tablet, television, or mobile phone)”.

The instrument consists of 12 items (see Supplementary material, B2). Each item contains 3 or 4 subitems that identify the sex of the people who interact in the pornographic practice. For analytical purposes, pornography consumption was recoded as follows:

- People who exclusively view pornographic practices not involving explicit violence (e.g., viewing consensual sexual relationships without the use of force).
- People who view pornographic practices involving depictions of domination/humiliation, but do not view pornography involving physical violence (e.g., sexual relationships involving insults or threats; practices of domination and submission without causing physical pain).
- People who view pornographic material involving depictions of physical violence (e.g., depictions of

non-consensual sexual relationships involving the use of force; BDSM involving painful practices, etc.).

The items were designed by five members of the research team, who are experts in the study of sexuality, gender, and pornography. Once designed, we conducted a discussion group with nine participants with academic backgrounds in social or health sciences, in which the clarity and relevance of the items, as well as their classification into broader categories, were discussed. In a second step, 15 participants aged 18–35 completed the questionnaire and prepared an individual written report on their understanding and acceptability of the items. Based on these stages, the research team reached consensus on the final formulation of the items included in the variable “use of pornography”.

In order to facilitate the recognition of the practices viewed, the items were answered on a 5-point Likert scale, with 1 being Never and 5 being Always [31]. For the analysis of the information, the responses were dichotomized into Yes/No.

A Cronbach's alpha of 0.80 and 0.87 was found in the present study for the sample of women and men respectively, indicating good internal reliability. The latent structure of the items that make up the different types of pornography has been analysed by factor analysis, using principal component. The three item groups (P1-P3; P4-P6; P7-P12) showed a unidimensional latent structure. Bartlett's test of sphericity was <0.001 for all item groupings in both women and men. The percentage of variance explained in women was: P1-P3: 43%; P4-P6: 59%; P7-P12: 59% and in men was: P1-P3: 41%; P4-P6: 66%; P7-P12: 69%.

Covariates

Sex (male/female); Age (continuous variable); University studies (Yes/No); Place of origin (Spain/outside Spain); Sexual orientation, defined based on the person's sex and the sex of their sexual partners throughout their life (gay or lesbian/bisexual/heterosexual/no answer); Types of sexual partners in the last 12 months (only stable partner/only casual partner/stable and casual partner/no answer); Frequency of pornography consumption (never/once a month or less/2–3 times a month/once a week or more/no answer).

The models were adjusted using the Marlowe–Crowne Social Desirability Scale, a short version consisting of 18 items, validated in Spain by Gutiérrez et al. 2016 [32]. The short Spanish version by Gutiérrez et al. [32] showed a Cronbach's alpha coefficient of 0.72 for the 18–25 age group and 0.75 for the 26–49 age group. In our study, the Cronbach's alpha coefficient was 0.65.

Analysis

All analyses were stratified by sex. First, the frequency distribution of the dependent variables was described in the total sample of women and men, as well as according to the type of pornography consumed.

Subsequently, the association between the type of pornography consumed and the different dependent variables was analyzed. Given the ordinal nature of the dependent variables, the data was initially examined using ordinal logistic regression (ologit). After performing the Brand test, the models violated the proportional OR assumption, so the generalized linear model for ordinal dependent variables (gologit2), which responded adequately to our data, was used. The estimates were made using Stata 18.0 with the gologit2 command [33, 34]. This command, gologit2, allows for the estimation of models that are less restrictive than the proportional odds/parallel lines models estimated by ordinal logistic regression, but more parsimonious and interpretable than those estimated by multinomial logistic regression. To estimate the models, we used the automatic adjustment option, which allows us to identify the partial proportional odds model that best fits the data. Autofit is a step-by-step self-adjustment procedure that allows us to identify which covariates in the model do not meet the proportional odds requirement and to relax this restriction for those variables. This flexibility did not affect the main independent variable—type of pornography consumed—in any of the models included in the manuscript. Prior to the inclusion of the covariables in the models, we analyzed the correlation between the different covariables using Spearman's correlation coefficient. The maximum correlation coefficient value was 0.134. The percentage of missing data was less than 5%, so no imputation of missing values was performed.

First, we analyzed the association between pornography consumption and the dependent variables described above in women and men. The models were adjusted for sociodemographic variables (age, place of origin, university studies), as well as for potential confounders in the association between pornography use and the dependent variables. Specifically, the following covariates were included: sexual orientation, type of sexual partners in the last 12 months, and social desirability. All models were adjusted for the same covariates.

Subsequently, in order to analyze whether frequency of consumption could explain the associations identified between the type of pornography consumed and the dependent variables analyzed, the subsample of female and male pornography consumers was analyzed. The models were adjusted for the same variables (type of pornography consumed, age, place of origin, university studies, sexual orientation, type of sexual partners in the last

12 months, and social desirability), and the frequency of pornography consumption was also included.

The manuscript was prepared according to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines [35].

Results

Descriptive study

The sample consisted of 3,607 people, 1,840 women and 1,767 men. The mean age of women was 28.6 years (Standard Deviation [SD]: 3.5) and 28.7 years (SD: 3.4) for men. 77.7% of women and 72.1% of men had had exclusively heterosexual relationships. 68.5% of women and

63.1% of men had completed university studies. 97.1% of men and 89.2% of women were born in Spain.

93% of women and 92.8% of men had engaged in sexual practices throughout their lives. This percentage is slightly lower among people who do not consume pornography (women 91.1%; men 85.5%). Over the last 12 months, 82.5% of women and 74.5% of men reported having had a partner, while this percentage was 68.5% among men who do not consume pornography.

Table 1 (women) and Table 2 (men) describe the distribution of dependent variables in the total sample and according to the type of pornography consumed. 18.8% of women and 31.8% of men who have had sexual practices

Table 1 Description of sexual behavior by type of pornography consumed among women aged 18–35 in the past 12 months

Sexual behavior in the last 12 months	Type of pornography consumed in the last 12 months (n = 1840, n.a.=36)				
	None (n = 1007; 55.8%)	Non-violent explicit (n = 177; 9.8%)	Domination/ Humiliation, non- physical violence (n = 197; 10.8%)	Physical vio- lence, at least (n = 423; 23.4%)	Total (n = 1804)
Number of casual partners					
None	89.7	88.1	83.2	77.5	86.0
1–2 partners	7.0	7.3	9.7	11.1	8.3
3–5 partners	2.8	2.8	6.1	7.8	4.3
6 or more partners	0.6	1.7	1.0	3.5	1.4
Type of sexual partner (n.a.=46)*					
Stable and casual partner	4.6	9.1	7.8	9.1	6.5
Only stable partner	84.7	85.1	78.9	73.1	81.2
Only casual partner	10.7	5.8	13.3	17.9	12.3
Frequency OWN alcohol or drugs consumption before/after a sexual practice (n.a.=10)*					
Never	56.6	56.9	50.0	36.5	50.9
Very rarely	28.9	30.7	33.3	34.9	31.1
Sometimes	12.5	10.5	13.9	24.8	15.5
Almost always/always	1.9	2.0	2.8	3.7	2.5
Frequency PARTNER alcohol or drugs consumption before/after a sexual practice (n.a = 14)*					
Never	55.2	53.6	50.3	37.4	50.1
Very rarely	28.3	31.4	33.3	35.3	30.9
Sometimes	14.2	13.7	13.0	23.3	16.2
Almost always/always	2.3	1.3	3.4	4.0	2.8
Said YES when you did not want (n.a.=23)*					
Never	56.7	62.3	53.9	49.3	55.1
Very rarely	23.5	23.4	26.7	25.7	24.4
Sometimes	16.5	13.0	17.2	22.3	17.6
Almost always/always	3.3	1.3	2.2	2.7	2.8
Said NO when you wanted (n.a.=28)*					
Never	67.2	71.1	67.8	58.1	65.4
Very rarely	17.7	17.1	16.7	26.1	19.6
Sometimes	13.0	9.9	15.0	14.2	13.2
Almost always/always	2.1	2.0	0.6	1.6	1.8
Group sex (n.a.=3)*					
Yes	0.7	0.0	1.7	4.8	1.8
No	99.3	100.0	98.3	95.2	98.2

* Population base: 1539 women who had sexual intercourse in the last months

Table 2 Description of sexual behavior by type of pornography consumed among men aged 18–35 in the past 12 months

Sexual behavior in the last 12 months	Type of pornography consumed in the last 12 months (n = 1767, n.a.=59)				Total (n = 1708)
	None (n = 273; 16%)	Non-violent explicit (n = 207; 12.1%)	Domination/ Humiliation, non- physical violence (n = 274; 16%)	Physical vio- lence, at least (n = 954; 55.9%)	
Number of casual partners					
None	87.9	86.0	78.5	73.5	78.1
1–2 partners	6.2	8.2	12.8	11.3	10.4
3–5 partners	4.4	3.4	5.5	9.7	7.4
6 or more partners	1.5	2.4	3.3	5.5	4.1
Type of sexual partner (n.a.=2)*					
Stable and casual partner	6.4	3.3	9.4	15.2	11.5
Only stable partner	72.7	81.8	70.6	63.4	68.2
Only casual partner	20.9	14.9	20.0	21.4	20.3
Frequency OWN alcohol or drugs consumption before/after a sexual practice (n.a.=8)*					
Never	59.8	49.7	50.2	40.9	46.1
Very rarely	25.0	34.3	30.6	36.5	33.7
Sometimes	11.4	14.4	15.3	17.6	16.0
Almost always/always	3.8	1.7	3.8	5.0	4.2
Frequency PARTNER alcohol or drugs consumption before/after a sexual practice (n.a = 11)*					
Never	62.5	52.8	52.8	42.1	48.0
Very rarely	23.4	35.0	29.4	36.8	33.5
Sometimes	10.3	11.1	14.5	16.5	14.6
Almost always/always	3.8	1.1	3.4	4.6	3.9
Said YES when you did not want (n.a.=28)*					
Never	65.2	69.1	70.1	52.9	59.5
Very rarely	20.2	19.9	19.9	26.9	24.0
Sometimes	9.6	9.4	7.4	14.6	12.1
Almost always/always	5.1	1.7	2.6	5.4	4.4
Said NO when you wanted (n.a.=28)*					
Never	64.4	68.5	66.2	61.9	63.8
Very rarely	17.5	23.8	24.7	22.6	22.4
Sometimes	13.0	6.6	8.7	11.9	10.8
Almost always/always	5.1	1.1	0.4	3.6	3.0
Group sex (n.a.=5)*					
Yes	5.4	2.2	5.1	6.4	5.5
No	94.6	97.8	94.9	93.6	94.5

*Population base: 1399 men who have had sexual intercourse in the last 12 months

in the last 12 months have had casual partners. This percentage is higher among people who view pornography involving depictions of physical violence, among both women (26.9%) and men (36.6%).

49.1% of women and 53.9% of men have consumed alcohol or other drugs before or during sexual relationships they have had in the last year. This percentage is higher among women (63.5%) and men (59.1%) who view pornography involving depictions of physical violence.

49.9% of women and 52% of men say that their sexual partners in the last year had consumed alcohol or other drugs before or during sexual practices. This percentage is higher among women (62.6%) and men (57.9%)

who view pornography involving depictions of physical violence.

In the last 12 months, 44.9% of women and 40.5% of men have agreed to a sexual practice they did not want. This percentage is higher among people who consume pornography involving physical violence (women: 50.7%; men 46.9%) and lower among men who consume pornography involving domination/humiliation practices but not physical violence (men: 29.9%).

In the last 12 months, 65.4% of women and 63.8% of men have never refused a sexual practice they desired. This percentage is lower among women who consume

pornography involving depictions of physical violence (58.1%).

5.5% of men and 1.8% of women report having had group sex in the last year. This percentage is higher among women who consume pornography involving depictions of physical violence (4.8%).

Association between the type of pornography consumed and risky sexual behaviors in women

Table 3 shows the adjusted association between the type of pornography consumed and the dependent variables in women, both in the total sample and in the subsample

of female pornography consumers. Crude association is shown in Supplementary Material (see Supplementary Material, Table 2).

In the total sample of women, taking as a reference women who have not consumed pornography in the last 12 months, an association is identified between the consumption of pornography involving depictions of humiliation/domination, but not physical violence (OR:1.63), and the consumption of pornography involving depictions of physical violence (OR: 2.37) with a higher likelihood of having a higher number of casual partners. An association is identified between women,

Table 3 Association between type of pornography consumed and risky sexual behaviors in women aged 18–35 in the past 12 months

	A) Women				B) Women who have consumed pornography			
	Number of casual partners							
Type of pornography consumed	OR*	inf	sup	p	OR**	inf	sup	p
None	1.00				----			
Non-violent explicit	1.09	0.66	1.79	0.743	1.00			
Domination/Humiliation, non-physical violence	1.63	1.05	2.51	0.028	1.42	0.79	2.58	0.242
Physical violence, at least	2.37	1.70	3.29	0.000	1.67	0.98	2.85	0.058
Pseudo-R ² , PCP; LR-Test	0.03	8.1%	<0.001		0.042	10%	<0.001	
	Frequency OWN alcohol or drugs consumption before/after a sexual practice							
Type of pornography consumed	OR*	inf	sup	p	OR**	inf	sup	p
None	1.00				----			
Non-violent explicit	0.92	0.65	1.31	0.638	1.00			
Domination/Humiliation, non-physical violence	1.12	0.81	1.55	0.488	1.27	0.82	1.98	0.279
Physical violence, at least	1.93	1.51	2.47	0.000	2.34	1.58	3.47	0.000
Pseudo-R ² , PCP; LR-Test	0.04	51.4%	<0.001		0.049	45%	<0.001	
	Frequency PARTNER alcohol or drugs consumption before/after a sexual practice							
Type of pornography consumed	OR*	inf	sup	p	OR**	inf	sup	p
None	1.00				----			
Non-violent explicit	0.98	0.70	1.39	0.924	1.00			
Domination/Humiliation, non-physical violence	1.04	0.76	1.43	0.814	1.06	0.68	1.64	0.797
Physical violence, at least	1.68	1.31	2.15	0.000	1.91	1.28	2.83	0.001
Pseudo-R ² , PCP; LR-Test	0.03	50.2%	<0.001		0.041	44.1%	<0.001	
	Frequency of saying YES to sex not actually wanted							
Type of pornography consumed	OR*	inf	sup	p	OR**	inf	sup	p
None	1.00				----			
Non-violent explicit	0.84	0.58	1.23	0.373	1.00			
Domination/Humiliation, non-physical violence	0.96	0.67	1.37	0.808	1.10	0.67	1.81	0.697
Physical violence, at least	1.30	1.00	1.69	0.048	1.60	1.04	2.46	0.032
Pseudo-R ² , PCP; LR-Test	0.02	47.8%	<0.001		0.025	42%	<0.001	
	Frequency of saying NO to sex actually wanted							
Type of pornography consumed	OR*	inf	sup	p	OR**	inf	sup	p
None	1.00				----			
Non-violent explicit	0.72	0.51	1.03	0.074	1.00			
Domination/Humiliation, non-physical violence	0.98	0.71	1.36	0.916	1.30	0.84	2.01	0.247
Physical violence, at least	1.19	0.93	1.52	0.178	1.70	1.15	2.51	0.008
Pseudo-R ² , PCP; LR-Test	0.02	53.2%	<0.001		0.02	50.0%	<0.001	

* OR adjusted for: age, place of origin, university education, sexual orientation, type of sexual partners in the past 12 months, and social desirability

** OR adjusted for: age, place of origin, university education, sexual orientation, type of sexual partners in the past 12 months, social desirability, and frequency of consumption

Pseudo-R² McFadden's pseudo-R². PCP Percent Correctly Predicted, LR-test Likelihood Ratio test

who view pornography involving depictions of physical violence with the consumption of alcohol and/or other drugs before or during sexual practices (OR: 1.93), having sexual partners exposed to alcohol/drugs during sexual practices (OR: 1.68), and accepting unwanted sexual practices (OR: 1.30). Consumption of pornography not involving explicit violence is not associated with any of the dependent variables analyzed.

In the subsample of women who consume pornography, taking as a reference those women who consume pornography not involving explicit violence, an association was identified between the consumption of pornography involving depictions of physical violence and the likelihood of having a higher number of casual partners (OR: 1.67), a higher consumption of alcohol and/or other drugs before or during sexual practices, both by the woman surveyed (OR: 2.34) and her sexual partner (OR: 1.91), as well as a higher likelihood of accepting unwanted sexual practices (OR: 1.60) and rejecting desired sexual practices (OR: 1.70). The consumption of pornography involving depictions of humiliation/dominance, but not physical violence, was not associated with any of the dependent variables analyzed.

Association between the type of pornography consumed and risky sexual behaviors in men

Table 4 shows the adjusted association between the type of pornography consumed and the dependent variables in men, both in the total sample and in the subsample of male pornography consumers. Crude association is shown in Supplementary Material (see Supplementary Material, Table 3).

Taking as a reference men who have not consumed pornography in the last 12 months, those who view pornography involving depictions of physical violence (OR: 1.90) are more likely to have a higher number of casual partners. The consumption of pornography involving depictions of physical violence (OR: 1.37) or domination/humiliation but not physical violence (OR: 1.93) is associated with a higher likelihood of consuming alcohol and/or other drugs before or during sexual practices. The consumption of pornography involving depictions of physical violence was associated with a higher likelihood of having sexual partners exposed to alcohol/drugs during sexual practices (OR: 2.03) as well as a higher likelihood of rejecting a desired sexual practice (OR: 1.55). The consumption of pornography not involving explicit violence, as well as the consumption of pornography involving depictions of humiliation/dominance but not physical violence was not associated with any of the dependent variables analyzed.

In the subsample of men who consume pornography, taking as a reference those men who consume pornography not involving explicit violence, an association was

identified between the consumption of pornography involving depictions of physical violence and the likelihood of having a higher number of casual partners (OR: 2.09). The consumption of pornography involving depictions of physical violence showed a positive association with the likelihood of having a sexual partner who had consumed alcohol and/or other drugs before or during sexual practices (OR: 1.39), as well as with the likelihood of rejecting a desired sexual practice (OR: 1.99). The consumption of pornography involving depictions of humiliation/dominance but not physical violence was not associated with any of the dependent variables analyzed.

Discussion

Main results

The results of this study reflect differences in the distribution of risky sexual behaviors analyzed in women and men. Sexual practices with casual partners are more common in men, while the consumption of alcohol and drugs in sexual contexts is similar in both sexes, and the acceptance of unwanted sexual practices is more common in women.

Despite this, the association between exposure to different types of pornography and risky sexual behaviors is similar in women and men. In both sexes, and taking as a reference people who do not consume pornography, those who consume pornography involving depictions of physical violence are more likely to have casual sexual partners, as well as to consume and have partners who had consumed drugs or alcohol before or during sexual practices. Communication difficulties are observed in both sexes. In women, the consumption of pornography involving depictions of physical violence was positively associated with rejection of a desired sexual practices, and in men with acceptance of an unwanted sexual practice. In women, the consumption of pornography involving depictions of humiliation/dominance but not physical violence was also associated with a higher number of casual partners.

In the subsample of pornography consumers, and using those who viewed non-violent explicit content as a reference group, viewing pornography involving depictions of physical violence was associated—for both men and women—with a higher likelihood of having multiple casual partners, engaging with partners who had consumed alcohol and/or drugs, and, respectively, women rejecting desired sexual practices and men accepting unwanted ones. In women, the consumption of pornography involving depictions of physical violence was positively associated with the consumption of alcohol during a sexual practice, as well as with the acceptance of unwanted sexual relationships.

Table 4 Association between type of pornography consumed and risky sexual behaviors in men aged 18–35 in the past 12 months

Type of pornography consumed	A) Men				B) Men who have consumed pornography			
	OR*	inf	sup	p	OR**	inf	sup	p
Number of casual partners								
Type of pornography consumed	OR*	inf	sup	p	OR**	inf	sup	p
None	1.00				-----			
Non-violent explicit	0.87	0.50	1.54	0.640	1.00			
Domination/Humiliation, non-physical violence	1.41	0.86	2.33	0.177	1.64	0.99	2.73	0.057
Physical violence, at least	1.90	1.23	2.92	0.004	2.09	1.33	3.28	0.001
Pseudo-R ² , PCP; LR-Test	0.05	9.7%	< 0.001		0.05	10.8%	< 0.001	
Frequency OWN alcohol or drugs consumption before/after a sexual practice								
Type of pornography consumed	OR*	inf	sup	p	OR**	inf	sup	p
None	1.00				-----			
Non-violent explicit	1.45	0.96	2.20	0.077	1.00			
Domination/Humiliation, non-physical violence	1.49	0.99	2.26	0.056	1.04	0.70	1.55	0.846
Physical violence, at least	1.93	1.37	2.71	0.000	1.30	0.94	1.80	0.107
Pseudo-R ² , PCP; LR-Test	0.04	46.2%	< 0.001		0.04	44.1%	< 0.001	
Frequency PARTNER alcohol or drugs consumption before/after a sexual practice								
Type of pornography consumed	OR*	inf	sup	p	OR**	inf	sup	p
None	1.00				-----			
Non-violent explicit	1.49	0.98	2.27	0.061	1.00			
Domination/Humiliation, non-physical violence	1.50	0.99	2.29	0.059	1.03	0.70	1.53	0.871
Physical violence, at least	2.03	1.42	2.89	0.000	1.39	1.00	1.91	0.047
Pseudo-R ² , PCP; LR-Test	0.04	48.7%	< 0.001		0.04	43.7%	< 0.001	
Frequency of saying YES to sex not actually wanted								
Type of pornography consumed	OR*	inf	sup	p	OR**	inf	sup	p
None	1.00				-----			
Non-violent explicit	0.84	0.53	1.32	0.446	1.00			
Domination/Humiliation, non-physical violence	0.85	0.55	1.31	0.471	1.07	0.70	1.62	0.775
Physical violence, at least	1.03	0.71	1.49	0.894	1.37	0.95	1.98	0.089
Pseudo-R ² , PCP; LR-Test	0.03	60.5%	< 0.001		0.03	60.9%	< 0.001	
Frequency of saying NO to sex actually wanted								
Type of pornography consumed	OR*	inf	sup	p	OR**	inf	sup	p
None	1.00				-----			
Non-violent explicit	0.83	0.53	1.32	0.433				
Domination/Humiliation, non-physical violence	0.78	0.51	1.21	0.271	0.99	0.63	1.53	0.947
Physical violence, at least	1.55	1.09	2.21	0.015	1.99	1.37	2.88	0.000
Pseudo-R ² , PCP; LR-Test	0.03	57.2%	< 0.001		0.03	56.2%	< 0.001	

* OR adjusted for: age, place of origin, university education, sexual orientation, type of sexual partners in the past 12 months, and social desirability

** OR adjusted for: age, place of origin, university education, sexual orientation, type of sexual partners in the past 12 months, social desirability, and frequency of consumption

Pseudo-R² McFadden's pseudo-R², PCP Percent Correctly Predicted, LR test Likelihood Ratio test

On the frequency of risky sexual behaviors

Our results confirm that men are more predisposed to casual sex than women [36, 37]. This higher number of casual partners among men has been explained by the existence of a double standard, which rewards male promiscuity and penalizes female promiscuity [38]. From childhood, women are taught to prioritize love and emotional stability, while men are encouraged to explore sexuality and pleasure. On the other hand, casual sex poses a greater physical and emotional risk for women than for men [39, 40], a fact that could mediate women's lower predisposition to this type of encounter [41].

According to the data from our study, in the last 12 months, one in two men and women reported having consumed alcohol or drugs during a sexual practice and/or having been with a partner who had consumed them. Research conducted in universities showed data very similar to that obtained in our study [42]. The consumption of alcohol during sexual relationships has been associated with risky sexual behaviors such as inconsistent use of condoms or other contraceptive methods [43, 44], a higher diagnosis of sexually transmitted infections [45], as well as a higher likelihood of aggressive sexual behavior and sexual victimization [46–48].

We observed in our results that acceptance of sexual coercion is highly prevalent in both sexes. Five out of ten women and four out of ten men reported having accepted unwanted sexual behavior in the last 12 months. Despite this high frequency in both sexes, it is important to bear in mind that socialization around gender roles means that the response to and effect of sexual coercion on health and well-being differs between women and men [3]. While women more often experience feelings of guilt, shame, or anxiety due to a perceived lack of autonomy in their behavior, men sometimes report neutral or positive experiences with coercive behavior because there is cultural pressure for them to perceive any sexual initiative toward them as desirable. This difference in the consequences of coercive behaviors, as well as in their perception, could partly explain why women identify sexual coercion more frequently than men do [3].

On the association between exposure to different types of pornographic content and risky sexual behavior

Although there are differences between women and men in the frequency of behaviors that respond to risky sexual scripts, the association between the type of pornography consumed and these behaviors is similar in both sexes.

To the best of our knowledge, this is the first paper to analyze how the content of pornography consumed influences risky sexual behaviors. The fact that the associations identified in this study have been identified in studies that do not take into account the content of pornography [10, 49, 50] could reflect the high presence of depictions of physical violence in mainstream pornography [51].

Our results show that the consumption of pornography involving depictions of physical violence was positively associated with the likelihood of having a higher number of casual partners in both sexes. In women, this association is also identified with the consumption of pornography involving depictions of humiliation/domination but not physical violence. The meta-analysis conducted by Tokunaga et al. [52] identifies a robust association between pornography consumption, positive attitudes toward impersonal sex, and the likelihood of having casual sexual relationships. This association holds true for both women and men and is identified in both cross-sectional and longitudinal studies. According to the sexual script model, repeated viewing of impersonal sexual representations facilitates the incorporation of positive attitudes toward casual sex [52]. Impersonal sex is one of the components of the 3 A Theory of Script Learning [53] and is also one of the components of the Confluence Model of Sexual Aggression [54]. Studies carried out under this theoretical framework [55] identifies impersonal sex as a predictor of sexual aggression.

Our results show for the first time that the consumption of pornography involving depictions of physical violence may be linked to greater consumption of alcohol or other drugs by oneself or one's partner in a sexual practice, in both women and men. Viewing pornography with depictions of physically violent content can generate sexual fantasies and desires that require emotional distance to be transferred to real life, which is facilitated by both the consumption of alcohol and casual sex. The consumption of pornography with depictions of violent content has been associated with attitudes of acceptance of violence against women [56], as well as sexual scripts in which the transgression of boundaries, use of power, and coercion are presented as exciting elements [57, 58]. Pornographic content sometimes tends to overlap with substance abuse [59], which can reinforce the idea that the sexual disinhibition produced by substance abuse is part of a satisfying sexual experience. The consumption of violent pornography further reinforces relationships based on gender roles. For men, pornography involving depictions of physical violence reinforces the idea of dominant and emotionally disconnected masculinity, where sexuality involves the exercise of power and control [60, 61]. For women, viewing pornography involving depictions of physical violence can normalize the idea that suffering or submission should be transformed into desire [60]. In this context, alcohol can become a tool that facilitates gender roles, disinhibition, and justification of violent acts [62]. The presence of alcohol in sexual relationships is a characteristic of risky sexual scripts given its association with a higher likelihood of sexual aggression or victimization [63]. Previous studies show that consumption of violent pornography is associated with lower sexual empathy and greater acceptance of sex without explicit consent [64].

Our results show that the consumption of pornography involving depictions of physical violence is associated with a higher probability of women accepting unwanted sexual behavior, and in the sample of female consumers, it also associated with a higher likelihood of rejecting desired sexual practices. The lack of communication in a sexual practice, which is present in mainstream pornography [65], is a characteristic of risky sexual scripts [28]. A recent study showed that sexual scripts involving communication difficulties were significant mediators between pornography consumption and sexual coercion [66]. Our results add to the evidence obtained so far by identifying that viewing pornography involving depictions of physical violence is associated with a higher likelihood of women accepting unwanted sexual behavior, and in the sample of female pornography consumers, it is associated with a higher likelihood of rejecting desired sexual practices. Previous studies have shown evidence of the impact of violent pornography on sexual victimization and coercion [67–69]. Following Bourdieu's theory

[70, 71], the ritualized repetition of certain patterns of perception and evaluation of reality, in this case through the consumption of pornography involving depictions of violence, legitimizes the subordination of women within a patriarchal culture that objectifies them [57, 72]. In our results, there is no association between the type of pornography consumed and the acceptance of unwanted sexual practices among men, an association that is observed among women. This difference between women and men aligns with the notion of the “rape script” [3], in which women are relegated to the role of passive acceptance of unwanted sexual relationships, while men are socialized to take on an active and insistent role in sexual initiative.

Although there are studies showing that the effect of pornography on sexual behavior is associated with frequency of consumption [49, 73], in our study, most of the associations identified between the consumption of pornography involving depictions of physical violence and risky sexual behaviors hold true when adjusted for frequency of consumption in the consumer subsample. According to Krahe’s longitudinal study [49], frequent pornography consumption is associated in both sexes with greater adherence to risky sexual scripts and a higher presence of risky sexual behaviors. Based on previous studies suggesting that as frequency of consumption increases, so does the likelihood of consuming violent pornography [69], it is possible that the effect attributed to frequent pornography consumption is due, in part, to violent pornography consumption.

In the consumer subsample, in both sexes, consumption of pornography involving depictions of physical violence was associated with rejection of desired relationships. As previously noted [52, 65], the content of mainstream pornography tends to depict sexual relationships characterized by a lack of explicit consent or even enthusiasm on the part of women in acts of submission that end with displays of pleasure [74]. These representations could reinforce the idea that this resistance is, in women, part of a sexual game. Although information is scarce, there are also studies showing that men have fantasies of being dominated and/or sexually assaulted, which could reflect a transgression of gender roles [75]. According to our results, these fantasies could be more prevalent in men who view pornography involving depictions of physical violence than in those who view pornography not involving explicit violence.

The results of this paper should be interpreted taking into account its limitations and strengths. From a methodological point of view, the study includes a large sample that has been designed considering the structure of the young adult population living in Spain. One limitation relates to data collection, specifically the use of a voluntary online panel. It is possible that individuals in the

sample had greater access to digital technologies—and therefore to pornography—than the general population. However, it is important to note that the use of digital technologies is widespread in this age group in our country [76]. The measurement instrument used to analyze the type of pornography consumed has been validated using qualitative methodology, including young adult women and men. In order to minimize social desirability bias, the items included in the data collection on the type of pornography avoid words that could create rejection, such as rape, violence, or lack of consent. The response categories use a Likert scale to facilitate the reporting of consumption [31]. The models could not be adjusted for variables such as adverse childhood experiences, history of abuse and/or violence, mental health, personality traits, or sexual impulsivity. These variables have been associated with and pornography use and with risky sexual behaviors [77–80], so they could be confounding factors in the identified associations. Finally, the models were adjusted using the Marlowe-Crowne social desirability scale validated in Spain by Gutiérrez et al. [32]. In this regard, it is important to note that the social desirability scale used has moderate reliability, and therefore social desirability bias may be present in our study. If so, lower recognition of violent pornography consumption would skew our results toward the null hypothesis. The cross-sectional nature of the survey does not allow us to establish the time frame between exposure to the type of pornography and sexual behavior. Although it is likely that there may be an inverse relationship to that identified here, longitudinal studies [49, 73, 81] confirm that the effect of pornography on risky behaviors cannot be fully explained by an inverse association. The nature of the dataset and the design of the study do not allow for more operational policy recommendations that derive directly from the results of this study.

Conclusions

This study identifies an association between the type of pornography consumed and sexual behavior. Consumption of pornography with violent content was associated with behaviors previously identified as risk factors for sexual violence. These associations in the consumer group are not explained by frequency of consumption, indicating the need to include the type of pornography consumed in studies. Our results show similarities and differences in these associations between women and men, with detrimental and more negative effects for women. Understanding how pornographic content is associated with sexual behavior is fundamental in today’s society, where access to violent pornography is universal, the prevalence of alcohol consumption among young people is high, dating apps facilitate impersonal sex, and sexual violence is increasingly common.

These approaches must always incorporate a gender perspective.

Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s12889-025-25836-w>.

Supplementary Material 1

Authors' contributions

Study conception and design: BSB. Questionnaire design for data collection: BSB, CVC, ACT and VPM. Conducted statistical analyses BSB. Interpretation of results: BSB, CVC, LOG, VPM and ACT. Draft manuscript: BSB, CVC, LOG, VPM and ACT. All authors reviewed the manuscript. All the co-authors contributed to the interpretation of the findings and critical review of the manuscript and approved the final version for publication.

Funding

This work was funded by the Institute of Health Carlos III, Reference PI22CIII_00036, with the project "Characterization of pornography use and its association with sex-affective health: evidence for consensus on interventions with young people in Spain".

Data availability

The datasets and material (questionnaire) that have been produced during the current study are available from the first author on reasonable request that guarantees their use according to the ethical procedures adopted in this project and participants' informed consent documents content.

Declarations

Ethics approval and consent to participate

The study was conducted according to the guidelines of the Declaration of Helsinki and approved by the Ethics Committee of the Institute of Health Carlos III (Exp: CEI PI 04_2023-v3). Participation was voluntary and the participants were able to withdraw from the study. Written informed consent was obtained prior to enrolment with information about the study aims, participant's rights, confidentiality protection, how the study was to be developed and how to contact the main researcher.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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Received: 14 July 2025 / Accepted: 25 November 2025

Published online: 04 December 2025

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