

Why Do People Watch Pornography? The Motivational Basis of Pornography Use

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Why Do People Watch Pornography? The Motivational Basis of Pornography Use Abstract

Objective: Despite pornography viewing is widespread among internet users, no scales for measuring pornography-use motivations have been developed and psychometrically tested for use in general populations. The present work aimed to construct a measure that could reliably assess a wide range of pornography-use motivations in non-specific populations. *Method:* Self-report data of three separate samples ($N_1 = 772$, 51% women; $N_2 = 792$, 6% women; $N_3 = 1,082$, 50% women) were collected and analyzed using confirmatory factor analysis, measurement invariance testing, and structural equation modeling (SEM). *Results:* The most common pornography-use motivations were identified based on a literature review and qualitative analysis (N_1): sexual pleasure, sexual curiosity, emotional distraction/suppression, stress reduction, fantasy, boredom avoidance, lack of sexual satisfaction, and self-exploration. Items were constructed, and confirmatory (N_2 and N_3) factor analyses yielded strong psychometric properties. Further corroborating the structural validity of the Pornography Use Motivations Scale (PUMS), gender-based measurement invariance was tested, and associations of the frequency of pornography use (FPU), problematic pornography use (PPU), and pornography-use motivations were examined. Men—compared to women—demonstrated higher scores on all motivations expect for sexual curiosity and self-exploration. Based on the results of SEM, sexual pleasure, boredom avoidance, and stress reduction motivations showed positive, weak-to-moderate associations with FPU. Motivations relating to stress reduction, emotional distraction/suppression, boredom avoidance, fantasy, and sexual pleasure had positive, weak-to-moderate associations with PPU. *Conclusions:* The PUMS is a reliable scale to assess the most common pornography-use motivations in general populations.

Keywords: motivation; FPU; pornography use motivation; Pornography Use Motivations Scale; PPU

Public Health Significance Statements:

- Sexual pleasure, sexual curiosity, emotional distraction/suppression, stress reduction, fantasy, boredom avoidance, lack of sexual satisfaction, and self-exploration were identified as important motivations underlying pornography use.
- This study indicated that compared to women, men demonstrated higher scores on all motivations expect for sexual curiosity and self-exploration.
- This study highlighted that higher levels of sexual pleasure, boredom avoidance, and stress reduction motivations were related to a higher frequency of pornography use, while higher levels of stress reduction, emotional distraction/suppression, boredom avoidance, fantasy, and sexual pleasure were related to higher levels of problematic pornography use.

Why Do People Watch Pornography? The Motivational Basis of Pornography Use

According to the statistics of one of the most popular pornography sites, in 2019, this website was visited around 42 billion times, which means that more than 1,300 searches were conducted every second (Pornhub.com, 2019). Although some models facilitate the understanding of the popularity and high prevalence of pornography use (Cooper, 1998; Young et al., 2000), they do not give a satisfactory answer to the question regarding which motivations may lead to pornography use and different patterns of use.

The conceptualization and measurement of pornography use are diverse (T. Kohut et al., 2019), and the frequency of pornography use (FPU) has been assessed in most previous research (Short et al., 2012). FPU may inform about the extent of pornography use, whereas the examination of problematic pornography use (PPU) may inform on negative impacts related to use. However, the examination of pornography-use motivations (PUM) may reveal why people use pornographic materials. Certain motivations may differentiate between types (i.e., problematic or non-problematic use) and amounts (i.e., frequent or infrequent) of engagement (Ballabio et al., 2017; Király et al., 2015; Németh et al., 2011; Tóth-Király et al., 2019). For example, up to 40-50% of the variance in alcohol consumption and internet gaming disorder may be explained by drinking motives and gaming motives, respectively (Király et al., 2015; Kuntsche, 2007). As concurrently examining these aspects of pornography use (i.e., motivations, frequency, and problematic use) may result in a more detailed understanding of pornography-viewing behaviors. Therefore, the present study aimed (a) to construct—based on previous literature, qualitative and quantitative analyses—a relatively short and valid scale that could reliably assess a wide range of PUM in general populations, and (b) to examine their associations with FPU and PPU.

Overview of Pornography-Use Motivations and Limitations of Existing Scales

PUM relatively infrequently studied compared to FPU or PPU (Bóthe et al., 2015; Grubbs et al., 2015; Short et al., 2012). Most prior studies (Bois, 2002; Burns, 2001; Cooper et al., 2002; Franc et al., 2018; Goodson et al., 2001; McKenna et al., 2001; Wéry & Billieux, 2016) measured broader concepts (e.g., online sexual activity motivations, cybersex use motivations), used a single question to assess PUM, or included PUM as a subcategory in broader scales (see Table S1 in the supplementary material for an overview).

However, a more focused assessment of PUM started to emerge when the Internet Pornography Use Motivations Scale (IPUMS) (Paul & Shim, 2008) was constructed directly assessing online PUM. The IPUMS included four factors covering relationship motivations (e.g., watching pornography with their friends, or getting aroused before or during sex), mood management motivations (e.g., using pornography to help handle emotional states), using pornography out of habit (e.g., using it as a routine activity, or using it due to compulsive urges), and fantasy-related motivations (e.g., being part of a pornographic movie). The main limitations of this scale were that it was validated only using a university sample, some of the factors covered more than one motivation (e.g., one factor included items using pornography to socialize with friends and using it with a sexual partner during sexual activities) making it difficult to explain the true meaning of findings, and no other study investigated the psychometric properties of the IPUMS, which also makes its generalizability uncertain.

Apart from the IPUMS, the Pornography Consumption Inventory (PCI) (Reid et al., 2011) was also constructed to assess four PUM based on data from men with hypersexuality. The emotional avoidance factor referred to using pornography to eliminate or distract oneself from negative feelings such as sadness. The sexual curiosity factor was related to learning, information-seeking, or knowledge-expansion regarding sexual possibilities or activities. The excitement seeking factor included items referring to escaping to a fantasy world or were related to novelty-seeking. The last factor, sexual pleasure, included items related to physical release, masturbation, or sexual arousal. Regarding the shortcomings of the PCI (Reid et al., 2011), a small group of hypersexual men was used in the validation process, limiting the generalizability of the identified PUM. Although the PCI was tested in further studies, these studies used rather small or very specific samples (medical students, male visitors of a zoophilic website) and the results demonstrated varying psychometric properties for the PCI (Baltieri, de Oliveira, et al., 2016; Baltieri, De Souza Gatti, et al., 2016; De Souza Aranha E Silva & Baltieri, 2016). Thus, evidence regarding the generalizability of the PCI is weak and it may not cover all motivations that may be relevant in the case of general populations.

Taken together, there is no existing scale in the literature that measures a wide range of PUM reliably and validly in general populations. Nevertheless, the overviewed studies (Table S1) provide a solid theoretical background for the development of a new measure assessing PUM, using qualitative and quantitative approaches. The most prevalent PUM emerging from the overviewed studies were related to (a) *sexual pleasure* (using pornography to elevate sexual arousal or as a visual aid to masturbation), (b) *sexual curiosity* (seeking information about sexual acts and learning about sexuality through pornographic materials to improve one's sexual life), (c) *emotional distraction/suppression* (as a distraction from or suppression of negative feelings and emotions), (d) *stress reduction* (using pornography to reduce or cope with stress), and (e) *fantasy* (a motivation to escape from the real world and fantasize about being part of pornographic scenarios).

The Aims of the Present Study

The aims of the present work were (a) to construct a relatively short and reliable measure that could assess a wide range of PUM among general populations based on the scientific literature and qualitative and quantitative methods, and (b) to examine the associations between PUM and FPU and PPU. In Sample 1, qualitative analysis was employed to identify the most prevalent PUM, and then PUM items were constructed. In Sample 2 and Sample 3, confirmatory factor analyses were employed to examine the dimensionality, and structural validity of the Pornography Use Motivations Scale (PUMS) in a sample gathered on a pornography-providing website and in a community sample, respectively. Tests of measurement invariance were conducted on Sample 3 to ascertain the generalizability of the factor structure across gender groups. The construct validity of the identified motivations was examined relative to relevant pornography-related variables (i.e., FPU and PPU).

Methods

Participants and Procedure

The present investigation was conducted following the Helsinki Declaration and was approved by the Institutional Ethical Review Board of the research team's university. The data collection was conducted via online questionnaires; completing the surveys took 15-30 minutes. Each data collection was part of larger research projects, including more measures (Bóthe, Tóth-Király, et al., 2018; Bóthe, Tóth-Király, Potenza, et al., 2020; Tóth-Király et al., 2019). Participants were informed about the aims of the study, and informed consent was obtained from participants before data collection. Only individuals aged 18 years old or older were invited to participate in the present studies.

In the case of Samples 1 and 3, participants were invited to participate via a Hungarian public, topic-irrelevant *Facebook* page that has approximately 420,000 members. Regarding Sample 1, data collection occurred in June 2016, while in the case of Sample 3, data were collected in March 2017. In the case of Sample 2, participants were invited to participate via a popular Hungarian pornography site in December 2017.

Sample 1. Overall, 1,065 individuals initially agreed to participate. Underage individuals (30 participants) and individuals with inconsistent responses (15 participants) were excluded from further analysis. Having watched pornography in the past six months was an additional inclusionary criterion. Of the 1,020 participants, 248 did not watch pornography in the past six months. Therefore, 772 participants met the aforementioned criterion (females = 390, 50.5%). Participants were aged between 18 and 54 years ($M_{age} = 22.6$ years, $SD_{age} = 4.9$). Concerning relationship status, 394 were single (51.0%), 360 were in a romantic relationship (46.6%), and 18 were married (2.3%). Concerning sexual orientation, 621 respondents were heterosexual (80.4%), 82 were heterosexual with homosexuality to some extent (10.6%), 37 were bisexual (4.8%), ten were homosexual with heterosexuality to some extent (1.3%), 13 were homosexual (1.7%), two were asexual (0.3%), and seven were unsure about their sexual orientation (0.9%). On average, participants watched pornography weekly.

Sample 2. Overall, 904 individuals initially agreed to participate. However, 112 participants quit before completing the PUMS. Thus, 792 participants were included in the present analysis (females = 48, 6.1%). Participants were aged between 19 and 76 years ($M_{age} = 39.6$ years, $SD_{age} = 9.7$). Regarding relationship status, 162 were single (20.4%), 266 were in a romantic relationship (34.9%), 349 were married (44.1%), and five individuals indicated the "other" category (0.6%). As for sexual orientation, 630 respondents were heterosexual (79.5%), 90 were heterosexual with homosexuality to some extent (11.4%), 47 were bisexual (5.9%), five were homosexual with heterosexuality to some extent (0.6%), 12 were homosexual (1.5%), two were asexual (0.3%), and five were unsure about their sexual orientation (0.6%). On average, participants watched pornography 2-3 times a week.

Sample 3. Overall, 1,863 individuals initially agreed to participate. Underage individuals (31 participants) were excluded from further analysis. Moreover, 526 participants quit before completing the scales used in the present analyses (i.e., PUM and PPU), and 224 individuals did not watch pornography in the past year. Therefore, 1,082 participants met the aforementioned criteria (females = 537, 49.6%). Participants were aged between 18 and 64 years ($M_{age} = 24.3$ years, $SD_{age} = 5.4$). Regarding relationship status, 436 were single (40.2%), 588 were in a romantic relationship (54.4%), and 58 were married (5.4%). Regarding sexual orientation, 887 respondents were heterosexual (82.0%), 103 were heterosexual with homosexuality to some extent (9.5%), 48 were bisexual (4.4%), six were homosexual with heterosexuality to some extent (0.6%), 18 were homosexual (1.7%), three were asexual (0.3%), and 17 were unsure about their sexual orientation (1.5%). On average, participants watched pornography weekly.

Measures

Pornography-Use Motivations Scale (PUMS). The final version of the scale (Appendix 1) includes eight factors each with three items: *sexual pleasure* (e.g., “I watch porn because it makes masturbation easier.”), *sexual curiosity* (e.g., “I watch porn to learn new things.”), *fantasy* (e.g., “I watch porn because I can be a part of things that I cannot experience in real life.”), *boredom avoidance* (e.g., “I watch porn because I want to pass time when I am bored.”), *lack of sexual satisfaction* (e.g., “I watch porn because my sexual life is not satisfying.”), *emotional distraction/suppression* (e.g., “I watch porn to suppress my bad mood.”), *stress reduction* (e.g., “I watch porn because it is one of the best ways to relieve stress.”), and *self-exploration* (e.g., “I watch porn to get to know my own sexual desires better.”). Respondents indicated their answers on a seven-point scale (1 = “never”; 7 = “all the time”).

Problematic Pornography Consumption Scale (PPCS) (Bóthe, Tóth-Király, et al., 2018). The PPCS assesses PPU based on the six-component model of addiction (Griffiths, 2005) over the past six months. The scale includes six factors each with three items: *mood modification* (e.g., “Watching porn got rid of my negative feelings.”), *salience* (e.g., “I continually planned when to watch porn.”), *conflict* (e.g., “Watching porn prevented me from bringing out the best in me.”), *relapse* (e.g., “When I vowed not to watch porn anymore, I could only do it for a short period of time.”), *tolerance* (e.g., “I felt that I needed more and more porn in order to satisfy my needs.”), and *withdrawal* (e.g., “I became agitated when I was unable to watch porn.”). Respondents indicated their answers on a seven-point scale (1 = “never”; 7 = “all the time”). The internal consistency of the PPCS was adequate in this study ($\alpha = .94$).

Pornography Use Frequency (Bóthe, Tóth-Király, Demetrovics, et al., 2020). Respondents indicated the frequency of their online pornography use over the past year on an 11-point scale (1 = “never”, 11 = “more than 7 times a week”).

Statistical analyses

For statistical analyses, SPSS 22 and Mplus 7.3 were used. Initially, 32 items (four items per each factor) were examined based on previously established criteria: (1) content validity, (2) normality (assessed by skewness and kurtosis), and (3) corrected item-total correlations (Bóthe, Tóth-Király, Demetrovics, et al., 2020; Orosz et al., 2016, 2018). In the next step, confirmatory factor analysis (CFA) was applied on Sample 2 and Sample 3 to cross-validate the results using the weighted least squares mean- and variance-adjusted estimator (WLSMV) which has been found to be superior, compared to maximum-likelihood estimation methods, for ordered-categorical items, especially when response categories follow asymmetric thresholds such as in the present case (Finney & DiStefano, 2006; Morin et al., 2019).

Tests of measurement invariance were conducted on Sample 3 to ascertain the generalizability of the factor structure across gender groups. For these tests, we followed the typical sequence (Meredith, 1993; Millsap, 2011): (i) configural invariance (i.e., the equality of factor structure across groups); (ii) metric invariance (i.e., the equality of factor loadings); (iii) scalar invariance (i.e., the equality of item thresholds); (iv) residual invariance (i.e., equality of item uniquenesses); (v) invariance of the variance-covariance matrix (i.e., the equality of latent variances-covariances); and (vi) invariance of the latent means (i.e., the equality of latent means).

Commonly used goodness-of-fit indices were observed to evaluate the models (Brown, 2015; Hu & Bentler, 1999; Schermelleh-Engel et al., 2003; Tabachnick & Fidell, 2001): Comparative Fit Index (CFI; $\geq .95$ for good, $\geq .90$ for acceptable), the Tucker–Lewis Index (TLI; $\geq .95$ for good, $\geq .90$ for acceptable), and the Root-Mean-Square Error of Approximation (RMSEA; $\leq .06$ for good, $\leq .08$ for acceptable) with its 90% confidence interval. The comparison of the nested models within tests of

measurement invariance was based on the examination of relative changes (Δ) in fit indices where a decrease of .010 or higher for CFI and TLI and an increase of at least .015 or higher for RMSEA indicated a lack of invariance (Chen, 2007; Cheung & Rensvold, 2002). The chi-square (χ^2) and the chi-square difference ($\Delta\chi^2$) tests conducted via Mplus' DIFFTEST function are only reported for the sake of transparency but are not used in model evaluation because the χ^2 test has been found to be oversensitive to sample size and even to minor model misspecifications (Marsh et al., 2005).

Reliability was assessed using two indicators because using only Cronbach's alpha coefficients may be less reliable (Sijtsma, 2009). Cronbach's alpha values (Nunnally, 1978) were considered acceptable with values $\geq .70$ and good with values $\geq .80$ thresholds. Then, composite reliability (CR) was calculated (Raykov, 1997) because it better represents the construct as it considers factor loadings with their respective measurement errors ($> .60$ acceptable, $> .70$ good) (Bagozzi & Yi, 1988). In the last step, structural equation modeling (SEM) with WLSMV was utilized to explore the associations between PUM, FPU, and PPU to further corroborate the validity of the PUMS. The same fit indices were applied, as in the case of exploratory and confirmatory factor analysis.

Results

Identifying the Most Common Pornography Use Motivations

Statements referring to the motivational basis for pornography use were collected from 772 respondents (Sample 1) who watched pornography in the past six months (i.e., "Why do you watch pornography?"). Overall, 976 valid statements (from 1176 statements) were classified by two independent raters into the previously established categories, which corresponded to the most common PUMs that had been identified: sexual pleasure, sexual curiosity, emotional distraction/suppression, stress reduction, and fantasy. However, not all the motives fit into these categories (see Table 1). Therefore, three new motivational factors were created from those motivations that were mentioned in at least 1% of the qualitative answers (boredom avoidance, lack of sexual satisfaction, and self-exploration).

Boredom avoidance motivation included items referring to pornography use in order to reduce or eliminate boredom. *Lack of sexual satisfaction* motivation included items referring to pornography use as a result of not being satisfied with or missing something from one's sexual life. Lastly, *self-exploration* referred to the motivation of using pornography to the identification and recognition of one's sexual needs and preferences. Then, four items were constructed based on the statements of participants concerning each PUM factor for further analysis. The authors chose and refined statements from the aforementioned qualitative analysis following previously well-established criteria (Bóthe, Tóth-Király, et al., 2018; Orosz et al., 2018; Tóth-Király et al., 2017; Zsila et al., 2018): each item had to be (a) close to the everyday language used when talking about pornography; (b) easy to understand; (c) concise; (d) clearly belonging to the given dimension, but not to the others; (e) not referring to two or more concepts in one item (not double-barreled); (h) not suggestive; and (i) adjusted to the scaling.

Examining the Latent Structure of the PUMS

In the first step of the quantitative analysis (Sample 2), each of the 32 items were investigated based on (1) content validity, (2) corrected item-total correlations, and (3) normality (skewness and kurtosis) (Table 2). Three items per each factor were selected based on the pre-established criteria to have a concise and non-repetitive item set. The final items were selected as a result of high corrected item-total correlation, low kurtosis, and skewness values. In the next step, CFAs were conducted on the selected items (24 items) to test the latent factor structure of the PUMS. The first-order eight-factor model indicated an excellent fit to the data both in Sample 2 and Sample 3 (Table 3). The factors demonstrated adequate reliability indices and normality values in terms of skewness and kurtosis (Table 4, Table 5).

Testing Gender-Based Measurement Invariance

Tests of measurement invariance were conducted across genders to ascertain that the PUMS functions in the same manner across these groups (fit indices are reported in Table 3). Although the χ^2 and $\Delta\chi^2$ tests were statistically significant, the goodness-of-fit indices showed a fully satisfactory model fit each stage of the sequence. In addition, changes in the fit indices remained within the recommended guidelines (CFI and TLI $\leq .010$; RMSEA $\leq .015$) when equality constraints were added on the factor loadings, item thresholds, item uniquenesses, and factor variances-covariances, suggesting that the absence of measurement biases and the absence of meaningful group-based differences at the level of factor variances-covariances. However, the results also suggest the presence of latent mean differences;

thus, we probed these differences. When men's latent means were fixed to zero for the purposes of identification, females latent means (expressed in standard deviation units) were significantly ($p < .001$) lower on the sexual pleasure (-.457), fantasy (-.544), boredom avoidance (-.585), lack of sexual pleasure (-.647), emotional distraction/suppression (-.704), and stress reduction (-.675) factors. No significant differences were found on the sexual curiosity (-.030, $p = .658$) and self-exploration (.056, $p = .401$) factors.

Examining the Factors of PUMS in Relation to FPU and PPU

By utilizing SEM, the associations between PUM, FPU and PPU were investigated on Sample 3. Scores on the PPCS ranged from 18 to 126 ($M = 32.64$, $SD = 18.09$), the most frequently indicated FPU (median) was weekly pornography use. The model with standardized estimates is shown in Figure 1. The fit indices were acceptable (CFI = .942, TLI = .935, RMSEA = .064 [90% CI .062-.066]). PPU was positively and weakly related to motivations for sexual pleasure ($\beta = .09$, $p = .034$), fantasy ($\beta = .12$, $p < .001$), boredom avoidance ($\beta = .14$, $p < .001$) and emotional distraction/suppression ($\beta = .20$, $p < .001$), whereas it was positively and moderately related to that for stress reduction ($\beta = .43$, $p < .001$). FPU was positively and weakly related to motivations for stress reduction ($\beta = .14$, $p = .021$) and boredom avoidance ($\beta = .23$, $p < .001$), whereas it was positively and moderately related to that for sexual pleasure ($\beta = .34$, $p < .001$). In sum, differentiated relationship patterns were observed regarding the motivational domains linked to PPU and FPU, corroborating the construct validity of the identified PUM.

Discussion

While how much and how frequently pornography is consumed and relationships between FPU and PPU have been extensively studied (Böthe, Tóth-Király, Potenza, et al., 2020; Gola et al., 2016; Grubbs, Perry, et al., 2019), less research has focused on PUM (Paul & Shim, 2008; Reid et al., 2011). Regardless that motivations may contribute importantly to the development of adaptive or maladaptive outcomes, such as harmonious or obsessive passion or problematic use (Flayelle et al., 2019; Király et al., 2015; Tóth-Király et al., 2019; Yee, 2006). Therefore, based on a thorough literature review and qualitative analysis, eight relevant motivations of pornography use were identified in the present study. As a result of careful psychometric examination on independent samples, the eight-factor PUMS yielded strong psychometric properties in terms of reliability, construct validity, and gender-based measurement invariance. Thus, the PUMS can be considered as an adequate measure to assess a wide range of PUM with a relatively small item set in general populations.

A Diverse Set of Motivations for Pornography Use in General Populations

Sexual pleasure has arguably been the most frequently reported PUM in prior studies (Bois, 2002; Burns, 2001; Goodson et al., 2001; Reid et al., 2011; Wéry & Billieux, 2016) and in the present study as well. In line with prior studies (Baltieri et al., 2015; Baltieri, de Oliveira, et al., 2016; Reid et al., 2011), sexual pleasure motivation had positive, weak-to-moderate associations with all the other motivations and men demonstrated higher scores than women. Sexual pleasure motivation had the weakest association with sexual curiosity motivation; this may be explained by the different functions that these two motives serve. In case of sexual pleasure motivation, people may turn to pornography because they consider pornography as a useful tool for masturbation, and they may choose types of pornographic materials that they already know and enjoy; therefore, they may not learn from it. However, in the case of sexual curiosity motivation, people may consider pornography as a source of information to broaden their sexual experiences; thus, they may search for new pornographic materials that they may or may not find sexually arousing. Sexual-pleasure motivation was positively and moderately related to FPU, indicating that using pornography to achieve sexual pleasure may result in more frequent pornography use. However, it also had a positive, but weak association with PPU. Previously, sexual-pleasure motivation demonstrated strong, positive association with the FPU (Brown et al., 2017), while it showed non-significant or weak-to-moderate associations with problematic OSA or hypersexuality (De Souza Aranha E Silva & Baltieri, 2016; Reid et al., 2011; Wéry & Billieux, 2016). These results are partly in line with previous studies, presumably due to the diverse methodologies applied in the studies above (i.e., bivariate correlations).

Besides sexual pleasure motivation, *sexual curiosity* was also commonly reported (Burns, 2001; Goodson et al., 2001; McKenna et al., 2001; Reid et al., 2011) in prior studies and in the present study as well. In line with prior results (Baltieri et al., 2015; Baltieri, De Souza Gatti, et al., 2016; De Souza Aranha E Silva & Baltieri, 2016; Reid et al., 2011), motivations linked to sexual curiosity had weak-to-

strong positive associations with all the other motivations, and no significant differences were observed in men's and women's mean scores on this factor. When examining sexual-curiosity motivations in relation to FPU and PPU and accounting for other motivations, sexual curiosity was unrelated. These results are in line with previous studies in which sexual curiosity was not a significant correlate of problematic OSA or hypersexuality (De Souza Aranha E Silva & Baltieri, 2016; Wéry & Billieux, 2016). As for FPU, despite reports of positive, moderate associations between motivations of sexual curiosity and FPU (Brown et al., 2017), no significant association in the present examination was identified between these variables, possibly as a result of the multivariate analytic approach. Sexual curiosity may be a common motivation for pornography use, and individuals may use pornography to generate new ideas for offline sexual acts (Albury, 2014). Using pornography and considering it as a reliable source of information may change attitudes or expectations (Sun et al., 2016; Træen et al., 2004; Wright, 2013), but motivations for sexual curiosity may not result in frequent or PPU.

In line with the previous findings (Brown et al., 2017; Franc et al., 2018; Reid et al., 2011; Wéry & Billieux, 2016), emotional distraction/suppression, stress reduction, and boredom avoidance as potential motives behind pornography use also appeared in the present study but with lower frequencies than the other motives. Strong associations were observed between emotional distraction/suppression, stress reduction, and boredom avoidance motivations; however, these motivations should not be merged. Based on the circumplex model of affect (Posner et al., 2005; Russell, 1980), boredom is characterized as a low-arousal, slightly unpleasant affect, stress is characterized as a high-arousal, neutral affect, while negative emotions (e.g., being sad, depressed, or angry) are characterized as moderate-arousal, highly unpleasant affects. Thus, these emotions derive from different affective states and may be associated with different outcomes as well (Posner et al., 2005). Moreover, while in the case of boredom avoidance motivation, pornography use may be considered as a pleasure-seeking, approach-oriented behavior (Elliot, 1999; Grubbs et al., 2019), in the case of emotional distraction/suppression and stress reduction motivations, pornography use may be considered as an avoidance-oriented, coping-related behavior (Elliot, 1999; Reid et al., 2011). Also, emotional distraction/suppression, stress reduction, and boredom avoidance motivations appeared as distinct motives for pornography use (Grubbs, Wright, et al., 2019; Kohut et al., 2017; Wéry & Billieux, 2016). Therefore, we considered these motivations as associated, yet distinct motives for pornography use.

As for *emotional distraction/suppression*, similarly to prior studies (Baltieri et al., 2015; Baltieri, de Oliveira, et al., 2016; Paul & Shim, 2008; Reid et al., 2011), it had weak-to-strong positive associations with all the other motivational factors and men demonstrated higher scores than women. Emotional distraction/suppression motivations were unrelated to the FPU but had a positive, weak association with PPU. This finding was in line with previous studies about problematic sexual behaviors (Reid et al., 2011; Wéry & Billieux, 2016) and with the self-medication hypothesis (Khantzian, 1997; Reid et al., 2013), individuals may use pornography to reduce their negative feelings, which in turn may contribute to the severity of PPU.

Concerning *stress reduction* (Paul & Shim, 2008; Wéry & Billieux, 2016), similarly to previous findings (Baltieri, de Oliveira, et al., 2016; Paul & Shim, 2008), using pornography to relieve stress had moderate-to-strong positive associations with all other motivations, and men demonstrated higher scores than women. Motivations to reduce stress had positive, weak associations with the FPU, and they had the strongest positive associations with PPU. Stress-reduction motivations may contribute similarly or to a higher degree to the development of PPU as emotional distraction/suppression, in line with a self-medication hypothesis (Khantzian, 1997; Reid et al., 2013). To summarize, pornography may seem an easily accessible, affordable, seemingly anonymous and fast way (Cooper, 1998; Young et al., 2000) to diminish stress, but it may also generate even more stress as a result of developing PPU.

Previously, motivations related to *boredom avoidance* were either assessed with one item (Wéry & Billieux, 2016), as a component of other motivations (Burns, 2001; Franc et al., 2018; Paul & Shim, 2008) or not at all in relation to pornography use, even though prior work suggests that pornography use may be considered as a pleasure-seeking behavior that may eliminate feelings of boredom (Grubbs, Wright, et al., 2019). According to the present results, boredom-avoidance motivations showed positive, weak-to-strong positive associations with all other motivations, and men demonstrated higher scores than women. It had weak, positive associations with both FPU and severity of PPU. These results suggest that individuals may use pornography to eliminate their boredom, and this pornography use may result in frequent and/or PPU (Bóthe, Tóth-Király, Potenza, et al., 2020).

Pornography may provide experiences that may be challenging to achieve in real-life situations; thus, individuals may use pornography to satisfy their sexual *fantasies* (Cooper et al., 2002; Paul & Shim, 2008; Reid et al., 2011). As in prior studies (Baltieri et al., 2015; Baltieri, de Oliveira, et al., 2016; Baltieri, De Souza Gatti, et al., 2016; Paul & Shim, 2008; Reid et al., 2011), fantasy motivations demonstrated moderate-to-strong positive associations with all other pornography-use motivations, and men had higher scores than women. Also, fantasy motivations showed a weak, positive relationship with PPU, while it was unrelated to the FPU. These results fit together with previous findings on problematic OSA (Wéry & Billieux, 2016) and internet gaming disorder (Király et al., 2015, 2017), suggesting that fantasizing about being part of pornographic materials and using it to escape from the real world may result in PPU.

Lack of sexual satisfaction motivations is often blended with sexual-pleasure motivations despite that the latter may be considered as approach motivations (i.e., using pornography to reach sexual satisfaction), while the former may constitute avoidance motivations (i.e., using pornography to eliminate sexual dissatisfaction) (Elliot, 1999). Motivations due to lack of sexual satisfaction showed positive, weak-to-strong associations with all other motivations, and men reported higher scores than women. Regarding its associations with FPU and PPU, it was unrelated to both when concurrently considering other motivations. These preliminary results are in line with previous studies (Bóthe et al., 2017; Vaillancourt-Morel et al., 2019), suggesting that associations between sexual (dis)satisfaction and pornography use are complex and lack of sexual satisfaction in itself may not result in frequent or PPU in the absence of other PUM or possibly other risk factors for PPU.

Lastly, *self-exploration* motivation was identified as a potential PUM. Relatively few studies have examined pornography viewing as a potential source of exploring one's sexual preferences, especially in the case of adolescents and emerging adults (Bóthe, Vaillancourt-Morel, et al., 2019; Nelson et al., 2010). Pornographic materials may involve a wide range of sexual behaviors and may act for some as a venue for gathering experience and experimenting on what one prefers in sex. Self-exploration motivations showed positive, weak-to-strong associations with all other motivational factors, and no significant differences were observed in men and women. Associations appeared strongest between self-exploration and sexual-curiosity motivations; however, the two motivations should not be merged. While sexual curiosity refers to the perceived educating role of pornography regarding offline sexual activities (i.e., individuals view pornography to improve their offline sexual life), self-exploration is instead a self-related motivation to gain knowledge regarding one's preferences without social aspects of pornography use (i.e., it is not closely related to one's offline sexual acts). No significant associations were identified in the present study between FPU, PPU, and self-exploration motivations. These results may suggest that if individuals use pornography to promote their understanding of their sexual preferences, it may not result in frequent or PPU.

Potential Outcomes of Pornography Use Motivations: FPU and PPU

As associations between FPU and PPU have been debated (Bóthe, Tóth-Király, Potenza, et al., 2020; Brand et al., 2019; Gola et al., 2016; Grubbs, Perry, et al., 2019), a question arises whether similar PUM patterns may be associated with FPU and PPU. From the perspective of FPU, higher levels of sexual pleasure, boredom avoidance, and stress reduction motivations were related to increased FPU. These results are in line with findings reporting sexual pleasure as the strongest correlate of the FPU (Brown et al., 2017). However, the motivational patterns linked to PPU differed. Stress-reduction motivations were the strongest statistical predictors of PPU followed by emotional-avoidance, boredom-avoidance, fantasy, and sexual-pleasure motivations, respectively. These results are in line with previous studies (De Souza Aranha E Silva & Baltieri, 2016; Reid et al., 2011; Wéry & Billieux, 2016), indicating the importance of certain motivations in PPU and other related problematic sexual behaviors, such as hypersexuality or problematic OSA. When comparing the motivational patterns underlying PPU and FPU, emotional-avoidance and fantasy motivations were related to PPU, but not to FPU, suggesting that although stress reduction may be the strongest predictor of PPU, it may not result in PPU without emotional distraction/suppression and fantasy motivations, although this possibility warrants direct examination. Individuals who use pornography not only to reduce their stress but also to avoid negative feelings, forget about their problems, and escape from the real world may be at elevated risk of developing PPU.

Limitations and Future Studies

As self-reported, cross-sectional methods were applied, possible biases should be considered when interpreting findings (e.g., self-selection bias). Motivations may be temporarily stable, or they may change over time, individuals may temporarily use pornography for certain motivations (e.g., missing sexual activities from their life as a result of being single), but later these motivations can change once again due to situational variables (e.g., being in a romantic relationship). Thus, longitudinal studies are needed to examine the stability of motivations and their behavioral associations over time. Sexual orientation and culture-based comparisons are needed to further evaluate the psychometric properties and the generalizability of the PUMS (Bóthe, Bartók, et al., 2018; Király et al., 2019). Person-centered analyses would be beneficial to gain better knowledge regarding the motivational profiles that may result in frequent or PPU (Bóthe, Tóth-Király, Potenza, et al., 2020). Moreover, other motivations may be more common in specific populations, such as habitual use motivations in university students (Paul & Shim, 2008; Sirianni & Vishwanath, 2016), or enhancement of sexual communication motivations in romantic relationships (Kohut et al., 2017), and may be associated with diverse outcomes (Kohut et al., 2017; Paul & Shim, 2008; Sirianni & Vishwanath, 2016).

Conclusion and Implications

Previously, no scale existed in the literature that could assess a wide range of PUM, resulting in the use of self-constructed measures (Goodson et al., 2001) or measures established on clinical populations when examining general populations (Baltieri et al., 2015; Baltieri, De Souza Gatti, et al., 2016). These practices could lead to incomparability across studies and the potential lack of assessment of important motivational factors in studies. To fill this gap, the eight-factor Pornography Use Motivations Scale (PUMS) was constructed and proved to be a reliable measure of a wide range of PUM in general populations. The identified motivations showed different relationship patterns with FPU and PPU. Thus, future studies should focus on the examination of the role of specific motivations in the development of PPU, perhaps with less emphasis on transdiagnostic features such as impulsivity or compulsivity (Bóthe, Tóth-Király, et al., 2019). Also, interventions might be targeted before the development of PPU, at times when PPU-related motivations are present that may be an effective way to reduce the risk of the development of PPU.

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Appendix 1. Pornography Use Motivation Scale language versions

English Version – Pornography Use Motivations Scale

People watch porn for different reasons. The most common ones are listed below. Using the scale below, indicate how often you watch porn for these reasons. Please respond as honestly as possible.

1 – 2 – 3 – 4 – 5 – 6 – 7 –
Never Rarely Rather rarely Sometimes Often Very often All the time

I watch porn...	1	2	3	4	5	6	7
1. ...to arouse myself sexually.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. ...to learn new things.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. ...because I can be a part of things that I cannot experience in real life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. ...because I am bored.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. ...because my sexual life is not satisfying.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. ... to suppress my bad mood.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. ... because it is one of the best ways to relieve stress.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. ... because I can find out what turns me on.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. ... because it makes masturbation easier.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. ... to become better in bed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. ... because it provides such an experience that would be impossible in real life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. ... because I have nothing better to do.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. ... because I am not content with my sexual life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. ... to distract myself from my negative thoughts.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. ... because it calms me down.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. ... to get to know my own sexual desires better.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. ... to relieve my sexual desires.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. ... to gather new ideas for sex.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. ... because it is like being in a desired world.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. ... because I want to pass time when I am bored.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21. ... because I miss sex.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22. ... because it makes me forget my problems.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23. ... because it helps me relax.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24. ... because I can get to know what I like in sex and what I do not.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Scoring: Add the scores of the items of each factor.

Sexual pleasure: 1, 9, 17

Sexual curiosity: 2, 10, 18

Fantasy: 3, 11, 19

Boredom avoidance: 4, 12, 20

Lack of sexual satisfaction: 5, 13, 21

Emotional distraction/suppression: 6, 14, 22

Stress reduction: 7, 15, 23

Self-exploration: 8, 16, 24

Hungarian Version – Pornográfia-használat Motivációi Skála

Az emberek különböző okok miatt nézhetnek pornót. Ezek közül lent összegyűjtöttük a leggyakoribbakat. Az alábbi skála segítségével jelöld, hogy milyen gyakran nézel pornót ezek miatt! Válaszolj a lehető legőszintébben!

1 – Soha 2 – Ritkán 3 – Inkább ritkán
4 – Előfordul 5 – Inkább gyakran
6 – Gyakran 7 – Mindig

Azért nézek pornót, ...	1	2	3	4	5	6	7
1. ... hogy szexuálisan felizgassam magam.	0	0	0	0	0	0	0
2. ... hogy új dolgokat tanuljak.	0	0	0	0	0	0	0
3. ... mert itt olyan dolgoknak válhatok a részesévé, amiknek a való életben nem.	0	0	0	0	0	0	0
4. ... mert unatkozom.	0	0	0	0	0	0	0
5. ... mert nem kielégítő a szexuális életem.	0	0	0	0	0	0	0
6. ... hogy elnyomjam a rosszkedvem.	0	0	0	0	0	0	0
7. ... mert ez az egyik legjobb stresszoldó.	0	0	0	0	0	0	0
8. ... mert így feltérképezhetem, hogy mi az, ami felizgat.	0	0	0	0	0	0	0
9. ... mert így jobban megy az önkielégítés.	0	0	0	0	0	0	0
10. ... hogy jobbra váljak az ágyban.	0	0	0	0	0	0	0
11. ... mert olyan élményt nyújt, ami a való életben nem kivitelezhető.	0	0	0	0	0	0	0
12. ... mert nincs jobb dolgom.	0	0	0	0	0	0	0
13. ... mert nem vagyok elégedett a szexuális életemmel.	0	0	0	0	0	0	0
14. ... hogy eltereljem a negatív gondolataimat.	0	0	0	0	0	0	0
15. ... mert megnyugtat.	0	0	0	0	0	0	0
16. ... hogy jobban megismerjem a saját szexuális vágyaimat.	0	0	0	0	0	0	0
17. ... hogy a szexuális vágyamat csillapítsam.	0	0	0	0	0	0	0
18. ... hogy új ötleteket gyűjtsek a szexhez.	0	0	0	0	0	0	0
19. ... mert olyan, mintha egy vágyott világban lennék.	0	0	0	0	0	0	0
20. ... mert valamivel el akarom ütni az időt, ha unatkozom.	0	0	0	0	0	0	0
21. ... mert hiányzik a szex.	0	0	0	0	0	0	0
22. ... mert elfeledtetni a problémáimat.	0	0	0	0	0	0	0
23. ... mert segít ellazulni.	0	0	0	0	0	0	0
24. ... mert így megtudhatom, hogy mit szeretek a szexben és mit nem.	0	0	0	0	0	0	0

Kiértékelés: Az adott faktorokhoz tartozó tételek pontszámát össze kell adni.

Szexuális élvezet: 1, 9, 17

Szexuális kíváncsiság: 2, 10, 18

Fantázia: 3, 11, 19

Unalom elkerülés: 4, 12, 20

Szexuális elégedettség hiánya: 5, 13, 21

Érzelmi elnyomás: 6, 14, 22

Stresszcsökkentés: 7, 15, 23

Én-felfedezés: 8, 16, 24

Table 1

The Most Common Pornography Use Motivations based on Qualitative Answers in Sample 1

Categories of Pornography Use Motivations	Number of Valid Responses	Percentage of Valid Responses
Sexual Pleasure	441	45.18%
Sexual Curiosity	120	12.30%
Fantasy	94	9.63%
Self-Exploration	64	6.56%
Lack of Sexual Satisfaction	58	5.94%
Boredom Avoidance	39	4.00%
Emotional Distraction/Suppression	21	2.15%
Stress Reduction	20	2.05%
Other	71	7.27%
General Positive Answers	48	4.92%
Total	976	100.00%

Note. The “Other” category included those responses that appeared in less than 1% of the responses (e.g., “using pornography out of habit”). The “General positive answers” category included those responses that indicated a general positive attitude toward pornography use without further specification (e.g., “because it’s good”).

Table 2

Initial Item Set of the Pornography Use Motivations Scale with Normality Indices and Corrected Item-Total Correlations

Items	CITC	Skewness	Kurtosis
(SP1) I watch porn to arouse myself sexually.	.555	-0.571	-0.615
(SP2) I watch porn because it makes masturbation easier.	.631	-0.477	-0.864
(SP3) I watch porn to relieve my sexual desires.	.710	-0.278	-0.981
(SP4) I watch porn because it helps me to satisfy my sexual desires.	.663	-0.016	-1.169
(SC1) I watch porn to learn new things.	.666	0.256	-0.868
(SC2) I watch porn to become better in bed.	.650	0.422	-1.051
(SC3) I watch porn because I'm interested in how others have sex.	.494	-0.210	-1.035
(SC4) I watch porn to gather new ideas for sex.	.748	0.228	-1.003
(F1) I watch porn because this way I can gratify my unfulfilled sexual desires.	.675	0.116	-1.241
(F2) I watch porn because I can be a part of things that I cannot experience in real life.	.754	0.108	-1.332
(F3) I watch porn because it provides such an experience that would be impossible in real life.	.773	0.418	-1.091
(F4) I watch porn because it is like being in a desired world.	.709	0.721	-0.749
(BA1) I watch porn because it is a good way to relieve boredom.	.679	0.369	-1.086
(BA2) I watch porn because I am bored.	.819	0.941	-0.334
(BA3) I watch porn because I have nothing better to do.	.777	1.312	0.789
(BA4) I watch porn because I want to pass time when I am bored.	.801	1.254	0.612
(LS1) I watch porn to compensate the lack of sex in my life.	.805	0.500	-1.105
(LS2) I watch porn because my sexual life is not satisfying for me.	.877	0.886	-0.519
(LS3) I watch porn because I am not content with my sexual life.	.850	0.881	-0.524
(LS4) I watch porn because I miss sex.	.818	0.297	-1.199
(EDS1) I watch porn to suppress my bad mood.	.803	1.040	-0.069
(EDS2) I watch porn to distract myself from my negative thoughts.	.849	1.341	0.816
(EDS3) I watch porn because it makes me forget my problems.	.858	1.501	1.330
(EDS4) I watch porn to not feel so bad.	.835	1.715	2.135
(SR1) I watch porn because it is one of the best ways to relieve stress.	.810	0.590	-0.820
(SR2) I watch porn because I process my tension this way.	.772	0.896	-0.422
(SR3) I watch porn because it calms me down.	.816	0.585	-0.852
(SR4) I watch porn because it helps me relax.	.785	0.428	-0.954
(SE1) I watch porn because I can find out what turns me on.	.737	0.042	-0.989
(SE2) I watch porn to get to know my own sexual desires better.	.812	0.324	-0.0959
(SE3) I watch porn because I can get to know what I like in sex and what I do not.	.788	0.590	-0.772
(SE4) I watch porn because it helps to explore my sexuality.	.750	0.612	-0.805

Note. SP = Sexual Pleasure; SC = Sexual Curiosity; F = Fantasy; B = Boredom Avoidance; LS = Lack of Sexual Satisfaction; EDS = Emotional Distraction/Suppression; SR = Stress Reduction; SE = Self-Exploration; CITC = Corrected Item-Total Correlation. Bold letters indicate the final items.

Table 3

Tests of Measurement Invariance on the Pornography Use Motivations Scale (PUMS)

Model	WLSMV χ^2 (df)	CFI	TLI	RMSEA	90% CI	Comparison	$\Delta\chi^2$ (df)	Δ CFI	Δ TLI	Δ RMSEA
<i>Measurement models</i>										
Sample 2	224	.978	.973	.066	.062, .071	—	—	—	—	—
Sample 3	224	.981	.977	.058	.054, .061	—	—	—	—	—
<i>Tests of Measurement Invariance Across Gender</i>										
Baseline men	577.733* (224)	.985	.981	.054	.049, .060	—	—	—	—	—
Baseline women	614.898* (224)	.978	.973	.057	.052, .062	—	—	—	—	—
M1. Configural	1194.078* (448)	.982	.977	.056	.052, .060	—	—	—	—	—
M2. Metric	1228.002* (464)	.981	.978	.055	.052, .059	M2-M1	44.442* (16)	-.001	+.001	-.001
M3. Scalar	1364.957* (577)	.981	.981	.050	.047, .054	M3-M2	215.984* (113)	.000	+.003	-.005
M4. Residual	1363.818* (601)	.981	.983	.049	.045, .052	M4-M3	45.542* (24)	.000	+.002	-.001
M5. Latent variance	1026.962* (637)	.990	.992	.034	.030, .038	M5-M4	68.153* (36)	+.009	+.009	-.015
M6. Latent means	2225.757* (645)	.961	.967	.068	.065, .071	M6-M5	317.589* (8)	-.029	-.025	+.034

Note. WLSMV = weighted least squares mean- and variance-adjusted estimator; χ^2 = Chi-square; df = degrees of freedom; CFI = comparative fit index; TLI = Tucker-Lewis Index; RMSEA = root-mean-square error of approximation; 90% CI = 90% confidence interval of the RMSEA; Δ CFI = change in CFI value compared to the preceding model; Δ TLI = change in the TLI value compared to the preceding model; Δ RMSEA = change in the RMSEA value compared to the preceding model; Bold letters indicate the final levels of invariance that were achieved. * $p < .01$

Table 4

Results of the Confirmatory Factor Analysis on the Pornography Use Motivations Scale Items on Sample 2

		Pornography Use Motivations Scale factors							
		Sexual Pleasure	Sexual Curiosity	Fantasy	Boredom Avoidance	Lack of Sexual Satisfaction	Emotional Distraction/ Suppression	Stress Reduction	Self- Exploration
1.	I watch porn to arouse myself sexually.	.582							
2.	I watch porn because it makes masturbation easier.	.685							
3.	I watch porn to relieve my sexual desires.	.985							
4.	I watch porn to learn new things.		.704						
5.	I watch porn to become better in bed.		.808						
6.	I watch porn to gather new ideas for sex.		.944						
7.	I watch porn because I can be a part of things that I cannot experience in real life.			.829					
8.	I watch porn because it provides such an experience that would be impossible in real life.			.872					
9.	I watch porn because it is like being in a desired world.			.890					
10.	I watch porn because I am bored.				.907				
11.	I watch porn because I have nothing better to do.				.883				
12.	I watch porn because I want to pass time when I am bored.				.938				
13.	I watch porn because my sexual life is not satisfying.					.970			
14.	I watch porn because I am not content with my sexual life.					.953			
15.	I watch porn because I miss sex.					.866			
16.	I watch porn to suppress my bad mood.						.902		
17.	I watch porn to distract myself from my negative thoughts.						.924		

18. I watch porn because it makes me forget my problems.	.933	
19. I watch porn because it is one of the best ways to relieve stress.		.879
20. I watch porn because it calms me down.		.895
21. I watch porn because it helps me relax.		.891
22. I watch porn because I can find out what turns me on.		.819
23. I watch porn to get to know my own sexual desires better.		.890
24. I watch porn because I can get to know what I like in sex and what I do not.		.899

Inter-factor correlations

Sexual Pleasure	—							
Sexual Curiosity	.101*	—						
Fantasy	.566*	.472*	—					
Boredom Avoidance	.184*	.317*	.356*	—				
Lack of Sexual Satisfaction	.571*	.153*	.555*	.353*	—			
Emotional Distraction/Suppression	.258*	.423*	.500*	.770*	.481*	—		
Stress Reduction	.503*	.411*	.576*	.624*	.492*	.779*	—	
Self-Exploration	.394*	.746*	.656*	.320*	.283*	.445*	.495*	—

Reliability indices

Cronbach's alpha	.759	.835	.858	.899	.920	.907	.892	.875
Composite reliability	.806	.863	.898	.935	.951	.943	.918	.903

Descriptive Statistics

Mean (SD) [observed range: 1-7]	4.574 (1.516)	3.273 (1.543)	3.197 (1.728)	2.237 (1.449)	2.939 (1.806)	2.172 (1.476)	3.045 (1.697)	3.254 (1.601)
Skewness (SE)	-0.361 (0.087)	0.310 (0.087)	0.413 (0.087)	1.099 (0.087)	0.729 (0.087)	1.247 (0.087)	0.552 (0.087)	0.376 (0.087)
Kurtosis (SE)	-0.604 (0.174)	-0.763 (0.174)	-0.881 (0.174)	0.295 (0.174)	-0.658 (0.174)	0.693 (0.174)	-0.712 (0.174)	-0.687 (0.174)

Note. All factor loadings are standardized. Loadings in bold represent the final items relative to its own factor and all are statistically significant at $p < .001$. SD = standard deviation; SE = standard error.

* $p < .001$.

Table 5

Results of the Confirmatory Factor Analyses on the Pornography Use Motivations Scale Items on Sample 3

		Pornography Use Motivations Scale factors							
		Sexual Pleasure	Sexual Curiosity	Fantasy	Boredom Avoidance	Lack of Sexual Satisfaction	Emotional Distraction/ Suppression	Stress Reduction	Self- Exploration
1.	I watch porn to arouse myself sexually.	.580							
2.	I watch porn because it makes masturbation easier.	.649							
3.	I watch porn to relieve my sexual desires.	.960							
4.	I watch porn to learn new things.		.787						
5.	I watch porn to become better in bed.		.884						
6.	I watch porn to gather new ideas for sex.		.929						
7.	I watch porn because I can be a part of things that I cannot experience in real life.			.833					
8.	I watch porn because it provides such an experience that would be impossible in real life.			.881					
9.	I watch porn because it is like being in a desired world.			.928					
10.	I watch porn because I am bored.				.921				
11.	I watch porn because I have nothing better to do.				.899				
12.	I watch porn because I want to pass time when I am bored.				.959				
13.	I watch porn because my sexual life is not satisfying.					.937			
14.	I watch porn because I am not content with my sexual life.					.952			
15.	I watch porn because I miss sex.					.826			
16.	I watch porn to suppress my bad mood.						.884		
17.	I watch porn to distract myself from my negative thoughts.						.907		

18. I watch porn because it makes me forget my problems.	.933	
19. I watch porn because it is one of the best ways to relieve stress.		.899
20. I watch porn because it calms me down.		.952
21. I watch porn because it helps me relax.		.903
22. I watch porn because I can find out what turns me on.		.877
23. I watch porn to get to know my own sexual desires better.		.892
24. I watch porn because I can get to know what I like in sex and what I do not.		.872

Inter-factor correlations

Sexual Pleasure	—							
Sexual Curiosity	.089*	—						
Fantasy	.494**	.419**	—					
Boredom Avoidance	.244**	.281**	.446**	—				
Lack of Sexual Satisfaction	.689**	.278**	.631**	.389**	—			
Emotional Distraction/Suppression	.353**	.359**	.561**	.727**	.574**	—		
Stress Reduction	.529**	.354**	.600**	.619**	.581**	.794**	—	
Self-Exploration	.336**	.713**	.624**	.305**	.412**	.469**	.457**	—

Reliability indices

Cronbach's alpha	.737	.873	.873	.913	.876	.886	.900	.879
Composite reliability	.784	.902	.913	.948	.932	.934	.942	.912

Descriptive Statistics

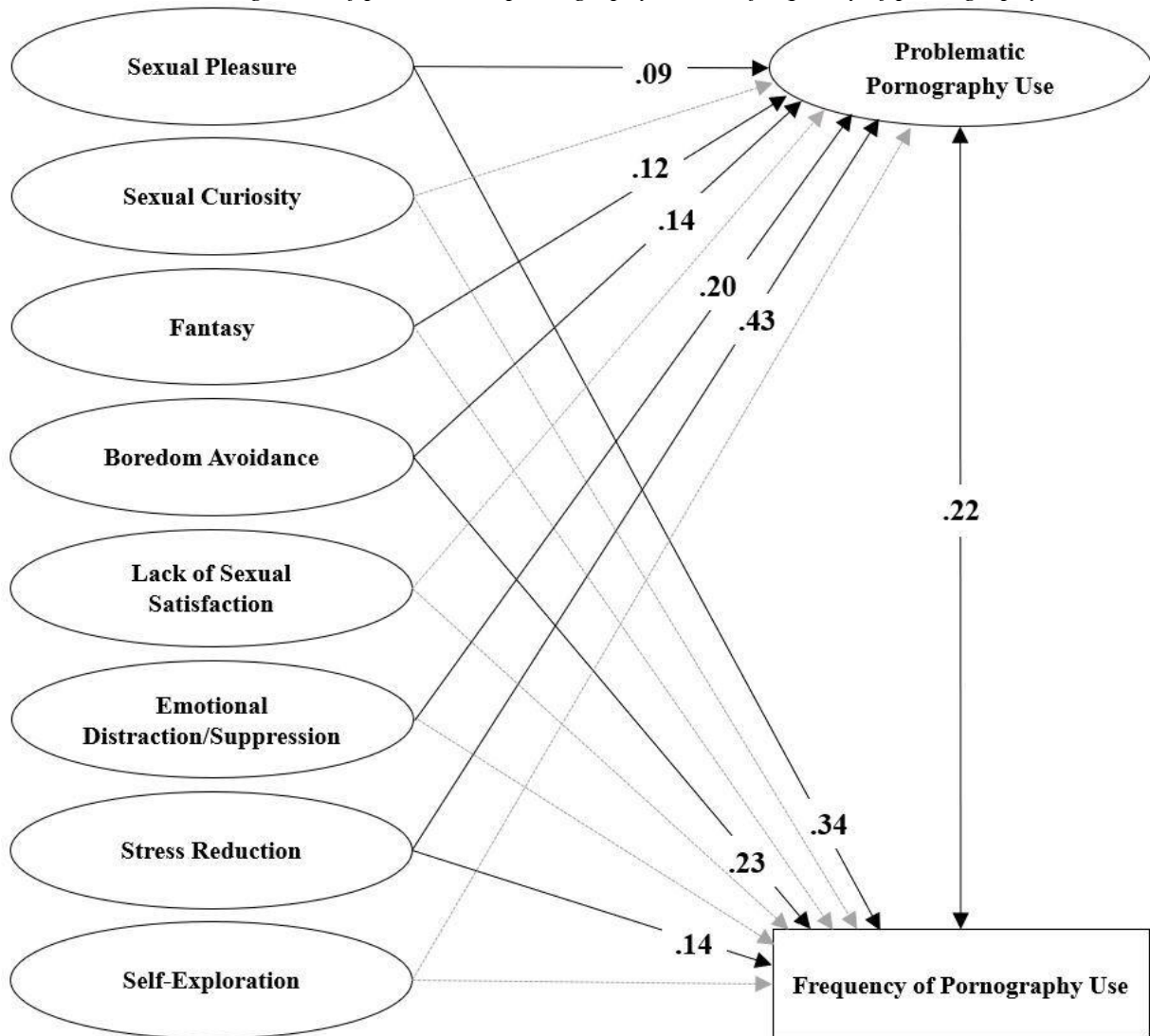
Mean (SD) [observed range: 1-7]	4.827 (1.549)	2.799 (1.556)	2.596 (1.670)	2.079 (1.451)	2.866 (1.837)	1.912 (1.325)	2.463 (1.652)	2.936 (1.565)
Skewness (SE)	-0.691 (0.074)	0.608 (0.074)	0.895 (0.074)	1.370 (0.074)	0.801 (0.074)	1.681 (0.074)	1.019 (0.074)	0.456 (0.074)
Kurtosis (SE)	-0.199 (0.149)	-0.557 (0.149)	-0.249 (0.149)	1.064 (0.149)	-0.509 (0.149)	2.430 (0.149)	0.080 (0.149)	-0.741 (0.149)

Note. All factor loadings are standardized. Loadings in bold represent the final items relative to its own factor and all are statistically significant at $p < .001$. SD = standard deviation; SE = standard error.

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

Figure 1

The motivational background of problematic pornography use and frequency of pornography use.



Note. All variables presented in ellipses are latent variables. For the sake of clarity, indicator variables related to them and correlations between the motivations are not depicted in this figure. One-headed arrows represent standardized regression weights and two-headed arrows represent correlations. Dashed arrows indicate non-significant pathways. All pathways in black were significant at level $p < .05$.

SUPPLEMENTAL MATERIAL FOR:

Why Do People Watch Pornography? The Motivational Basis of Pornography Use

Table S1

Summary of the Pornography Use-Related Motivations Assessment Tools

Author(s) (year of publication)	Basis of the measure	Participants (number and gender ratio)	Statistical methods	Measured concept	Motivations
Cooper et al. (1999)	measure developed by the authors	visitors of the MSNBC television network website (9177, 14% female)	principal components analysis	online and offline sexual experiences	<ol style="list-style-type: none"> 1. reflection 2. action 3. arousal 4. excitement
Goodson et al. (2001)	measure developed by the authors	college students (506, 70% female)	principal components analysis	practices and attitudes when utilizing the Internet for sex	<ol style="list-style-type: none"> 1. curiosity about sex 2. become sexually aroused 3. enhancement of sex life with offline partners
Burns (2001)	offline pornography motivation scale by Frable and colleagues (1997)	heterosexual men (348, 0% female)	principal components analysis	reasons for internet pornography viewing	<ol style="list-style-type: none"> 1. make sex more interesting 2. relieve sexual tension 3. turn on a sexual partner 4. enjoy a sexual thrill 5. learning about sex
McKenna et al. (2001)	scale on the basis of in-depth interviews	interview: cybersex chat room users (36, 17% women) survey: members of online groups devoted to mainstream sexual interests (104, 60% female)	interview: content analysis survey: structural equation modelling analysis	sexuality on the internet	<ol style="list-style-type: none"> 1. offline safety concerns 2. desire for frequent and convenient sexual outlets 3. desire to expand one's sexual knowledge and repertoire
Boies (2002)	Goodson et al. (2001)	university students (760, 65% female)	principal components analysis	online and offline sexual activities	<ol style="list-style-type: none"> 1. seeking relationships and partners – online 2. sexual entertainment 3. sexual gratification 4. sexual exploration – offline
Cooper et al. (2002)	Cooper et al. (1999)	visitors the MSNBC website (7037, 16% female)	frequency	online sexual activities	<ol style="list-style-type: none"> 1. distraction 2. education 3. cope with stress 4. explore sexual fantasies 5. socialize/similar interests

Kinsey Institute (2002)	fourteen pre-defined categories	viewers of "American Porn" and/or visitors to the website (10453, 17% female)	frequency	pornography use	<ol style="list-style-type: none"> 1. to masturbate/for physical release 2. to sexually arouse myself and/or others 3. sexual curiosity 4. because I can fantasize about things I would not necessarily want in real life 5. to distract
Paul & Shim (2008)	measure developed by the authors on the basis of Burns (2001), Goodson et al. (2001), McKenna et al. (2001), and Kinsey Institute (2002)	university students (321, 53% female)	principal components analysis	online pornography use	<ol style="list-style-type: none"> 1. relationship 2. mood management 3. habitual use 4. fantasy
Reid et al. (2011)	clinical experience, existing measures related to pornography, and theoretical literature related to the construct of hypersexuality	study 1: men seeking help to reduce pornography consumption (105, 0% female) study 2: patients who sought treatment for hypersexual behavior (107, 0% female)	study 1: principal components analysis study 2: confirmatory factor analysis	motivations for pornography use	<ol style="list-style-type: none"> 1. emotional avoidance 2. sexual curiosity 3. excitement seeking 4. sexual pleasure
Baltieri et al. (2015)	Reid and colleagues (2011)	medical university students (100, 0% female)	confirmatory factor analysis	motivations for pornography use	<ol style="list-style-type: none"> 1. emotional avoidance 2. sexual curiosity 3. excitement seeking 4. sexual pleasure
de Souza Aranha e Silva & Baltieri (2015)	Reid and colleagues (2011)	visitors of a zoophilic website (75, 0% female)	confirmatory factor analysis	motivations for pornography use	<ol style="list-style-type: none"> 1. emotional avoidance 2. sexual curiosity 3. excitement seeking 4. sexual pleasure

Baltieri, de Souza Gatti et al. (2016)	Reid and colleagues (2011)	medical university students (125, 100% female)	exploratory factor analysis, confirmatory factor analysis	motivations for pornography use	<ol style="list-style-type: none"> 1. emotional avoidance 2. sexual curiosity 3. excitement seeking 4. sexual pleasure
Baltieri, de Oliveira et al. (2016)	Reid and colleagues (2011)	medical university students (105, 51% female)	multigroup confirmatory factor analysis	motivations for pornography use	<ol style="list-style-type: none"> 1. emotional avoidance 2. sexual curiosity 3. excitement seeking 4. sexual pleasure
Wéry & Billieux (2016)	measurement developed by the authors on the basis of Billieux et al. (2013); Cooper, Shapiro, & Powers (1998); Cooper et al. (2001); Daneback, Cooper, & Mansson, (2005); Goodson et al. (2001); Ross et al. (2012)	French-speaking adult males (434, 0% female)	frequency	online sexual activities use	<ol style="list-style-type: none"> 1. for sexual satisfaction 2. to feel arousal 3. to achieve orgasm 4. because it's easy 5. for curiosity 6. to relax/decrease stress 7. because I get bored 8. to stimulate fantasies 9. to satisfy fantasies 10. to forget daily problems 11. to talk about sex 12. to learn new sexual techniques 13. to get educated about sex 14. to feel better when I feel alone 15. interest for pornography only available online 16. to not feel depressed/sad 17. to get support/advice in sexual matters 18. to improve online sexual intercourse 19. only way to have sexuality 20. to meet people with same sexual interests 21. to engage in sexual activities that I would not engage in offline

Franc et al. (2018)	measurement developed by the authors on the basis of the Gambling Motives Questionnaire (Stewart & Zack, 2008)	sample 1: users of sexuality-related websites (191, 28% female) sample 2: users of sexuality-related websites (204, 62% female)	principal components analysis, confirmatory factor analysis	cybersex use motivations	<ol style="list-style-type: none"> 22. difficult to buy pornography offline 23. to maintain arousal with partner 1. enhancement 2. coping 3. social
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